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ABSTRACT

This overview of trends and issues in Missouri higher education displays information through a series of tables, charts and figures using data primarily from the Missouri Statistical Summary 1989-1990. Some charts compare current data with earlier (10- to 20-year-old) data. Topics covered include the following: student preparation; student characteristics; degrees conferred and program resources; faculty characteristics; and financial and physical plant characteristics. Specific charts or tables address: educational degree aspirations of high school graduates; American College Testing (ACT) scores by type of high school curriculum; high school class rank of entering freshmen; freshman-to-sophomore attrition; 6-year completions by degree type; headcount enrollment by institution type; percent change in full time equivalent enrollments; geographic origin of undergraduate students; college age population trends; blacks as percent of total headcount enrollment; trends in women's enrollment; full time enrollment by age; trends in degrees awarded; degrees by discipline areas; trends in baccalaureate degrees completed; trends in teacher certifications; trends in doctoral degrees; first professional, doctoral, and engineering programs; full time employees; gender and ethnicity of full time faculty; faculty distribution by age; general revenue expenditures; sources of revenue; spending compared with other Midwestern states; trends in tuition; and students served by financial aid. (JB)

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The graphs and tables included in the Overview of Higher Education: Trends and Issues in Missouri were prepared as an overhead projection for the Coordinating Board for Higher Education and narrated by Commissioner Charles J. McClain on June 29, 1990.

July 1990

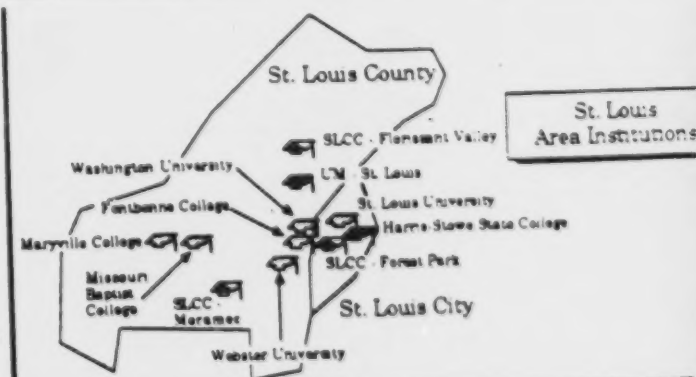
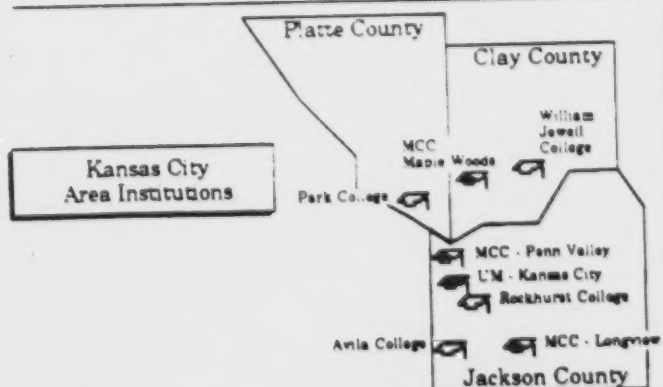
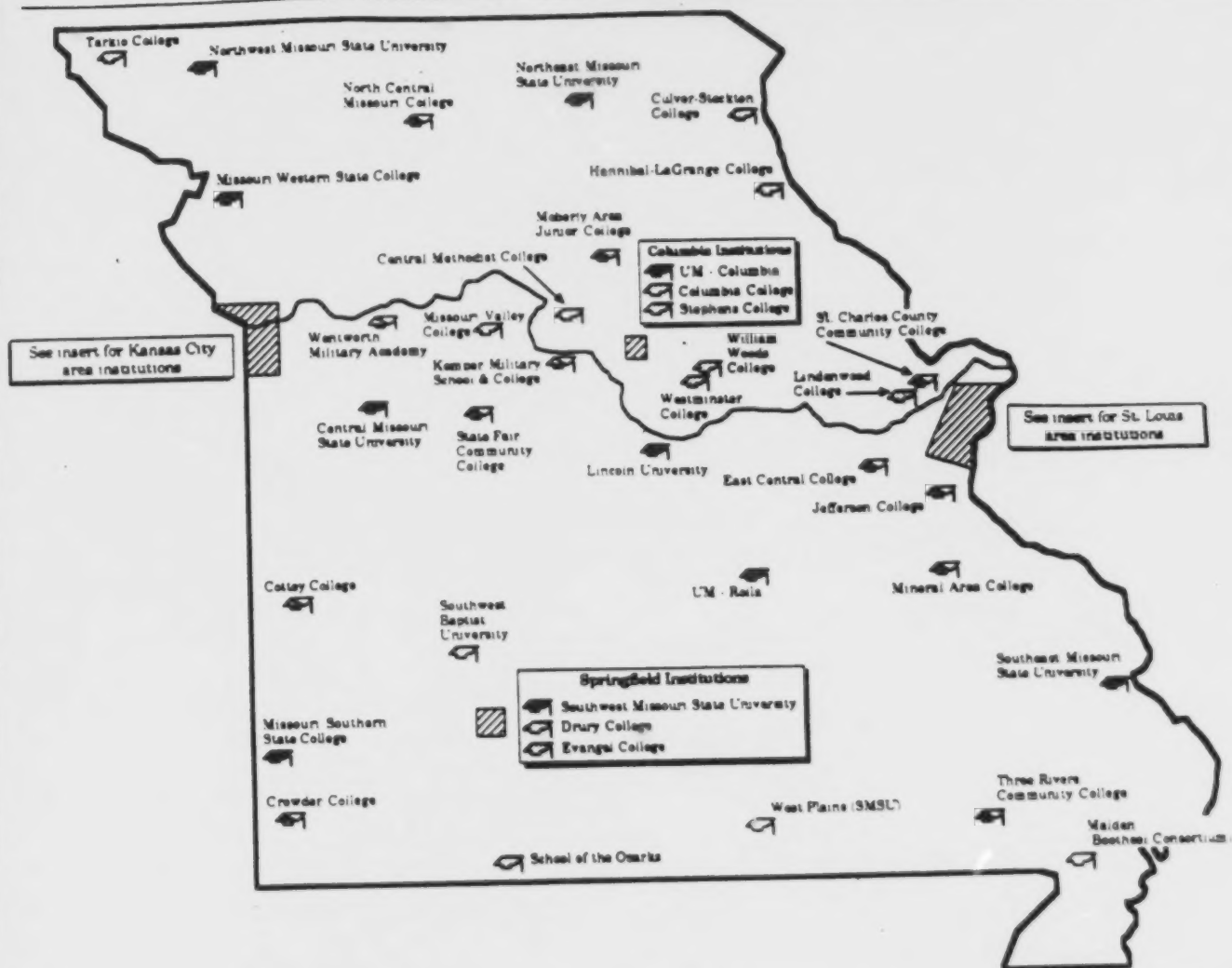
Missouri can be proud of its system of higher education. Missourians truly have a variety of different types of colleges and universities from which to choose to enroll for their higher education. It's this diversity which adds strength to our system of higher education.

We have a tremendous resource in our system of higher education. The system is composed of:

- Four campuses of the University of Missouri system, Lincoln and Northeast -- which serve statewide missions;
- Four public regional institutions -- Northwest in Maryville, Central in Warrensburg, Southwest in Springfield, and Southeast in Cape Girardeau; and
- Three state colleges and twelve community college districts.
- Missouri's major independent institutions consist of 27 traditional 2- and 4- year colleges and universities.
- Overall, there are a total of 49 governing boards overseeing 56 campuses.
- While this is an impressive group of colleges and universities, not included here are the 150 private vocational and career schools certified by the CBHE.
- There are 58 postsecondary vocational educational centers supervised by the Department of Elementary and Secondary Education.
- In addition we have private postsecondary schools offering programs leading to licensure and certification reporting to various boards associated with the Department of Economic Development.
- In total Missouri has over 440 postsecondary schools, colleges and universities.

Missouri Institutions of Higher Education

- Four-year Public Institutions
- Four-year Independent Institutions
- Two-year Public Institutions
- Two-year Independent and Military Institutions
- Residence Centers (with affiliation)



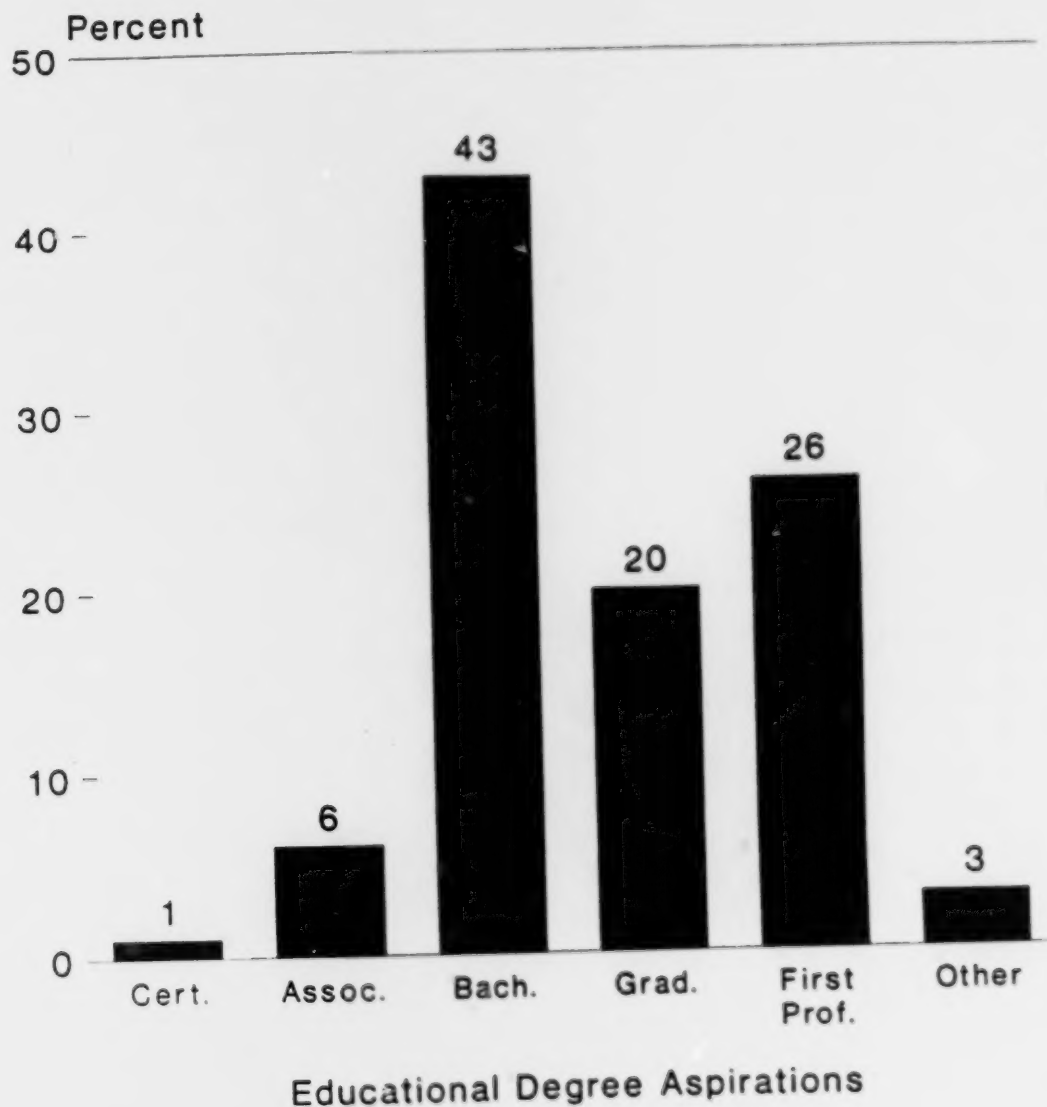
One lesson higher education has learned from business and industry is that the quality of any product is not only dependent upon the quality of the process used to produce the product, but also upon the quality of the raw materials.

Any assessment of the quality of our system of higher education is dependent on the talents and abilities our students bring with them when they enroll in college.

Student Preparation

Eighty-nine percent of Missouri's ACT tested high school students aspire to a baccalaureate degree or higher. This distribution patterns the Midwest and the Nation. ACT tested students represent nearly 70 percent of Missouri's some 50,000 high school graduates.

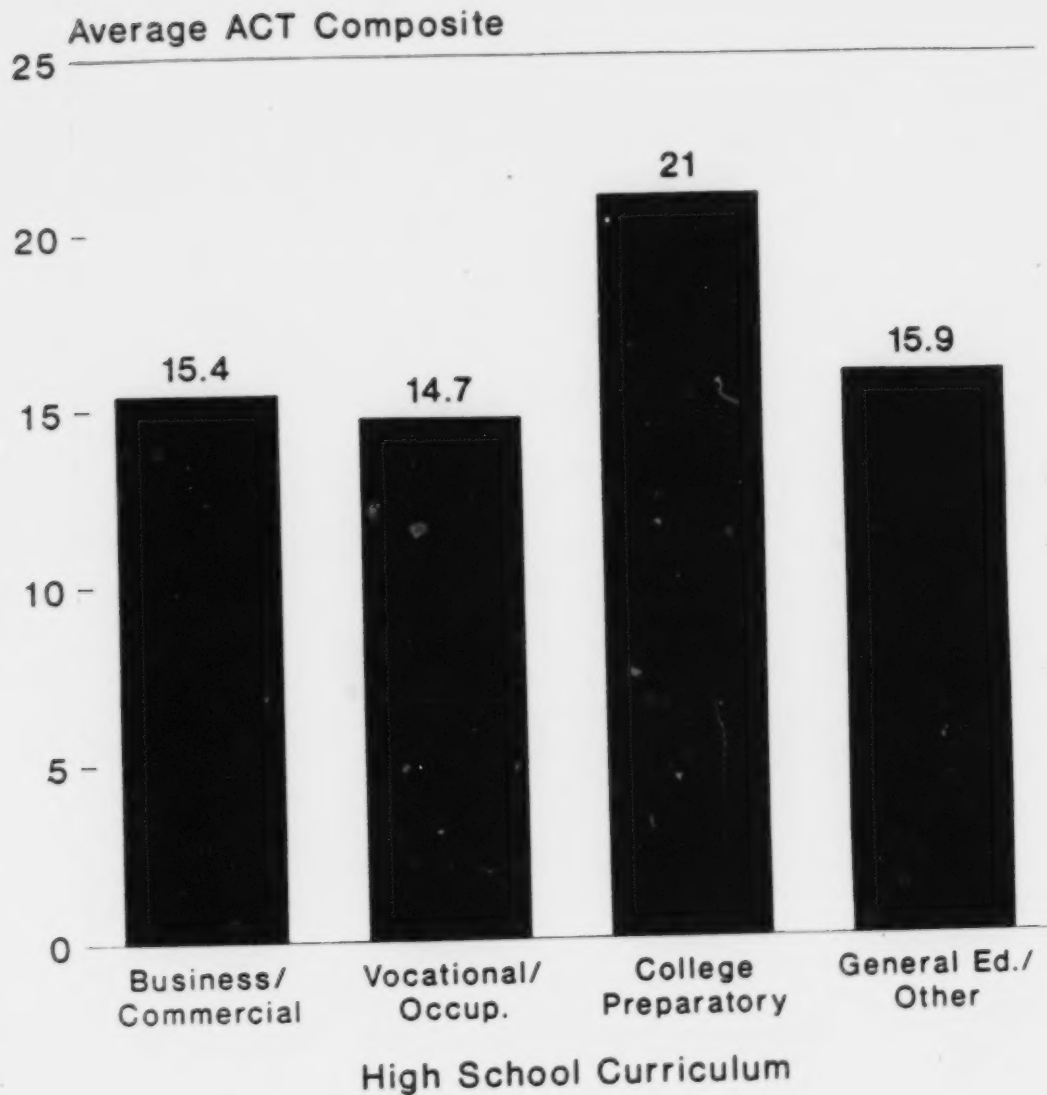
Educational Degree Aspirations of ACT Tested Students of the High School Graduating Class of 1989



Source: Missouri Statistical Summary,
1989-1990

High school students taking the college prep program score between 4 and 6 points higher on the ACT -- this is true for college prep students in other Midwest states and the Nation. Thus, preparation makes a difference. Public policy that results in early intervention to enhance preparation can also make a difference. Also, many states have asked their colleges to send strong signals to elementary and secondary school students about requirements for entering college.

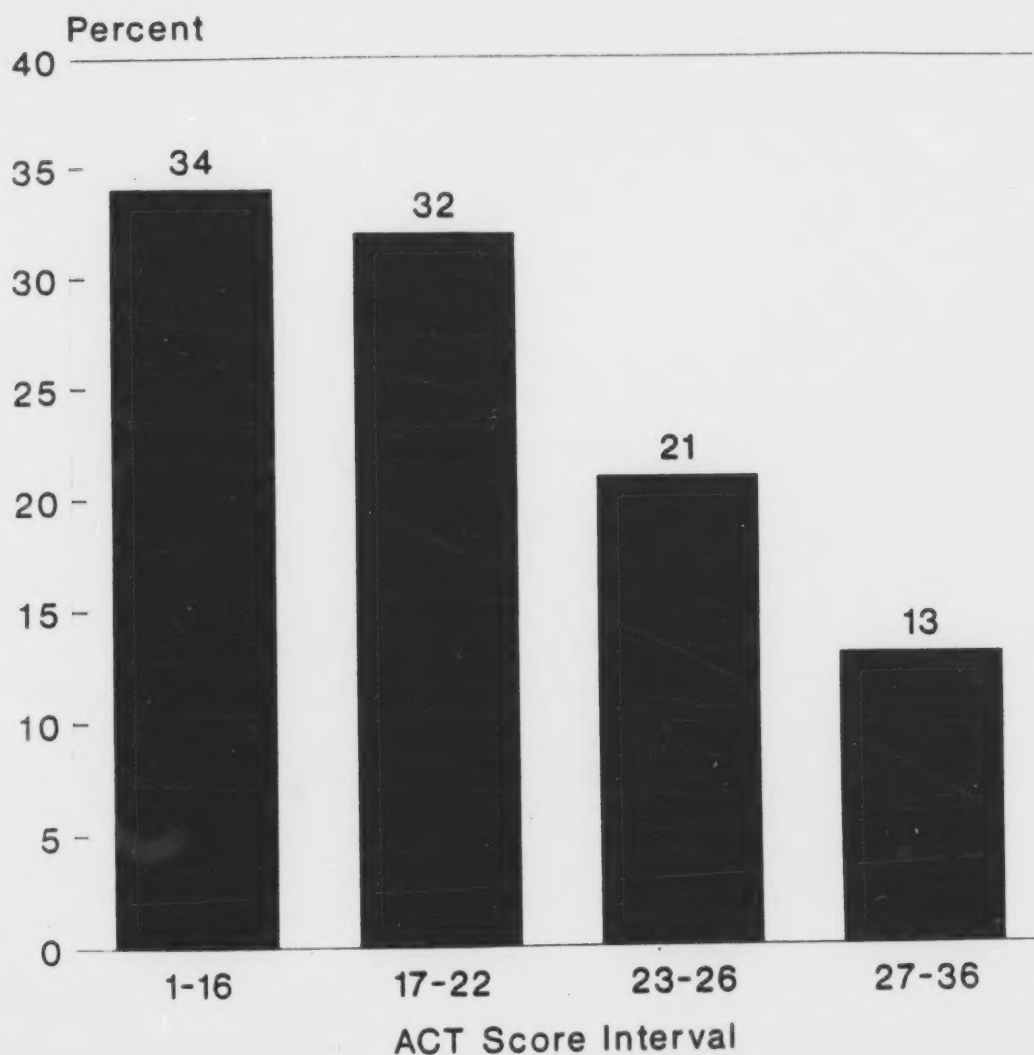
ACT Composite Scores by Type of Curriculum: High School Graduating Class of 1989



Source: ACT High School Profile Report, 1989

Thirty-four percent of the entering freshmen scored 23 or higher on the ACT -- that is at the 75th percentile or above. That percentage is up slightly from 1981 when 31 percent scored at the 75th percentile or above. The same percent scored 16 or below both in 1989 and 1981. The large number of students with scores below 16 suggest an urgent need for differentiated admission policies.

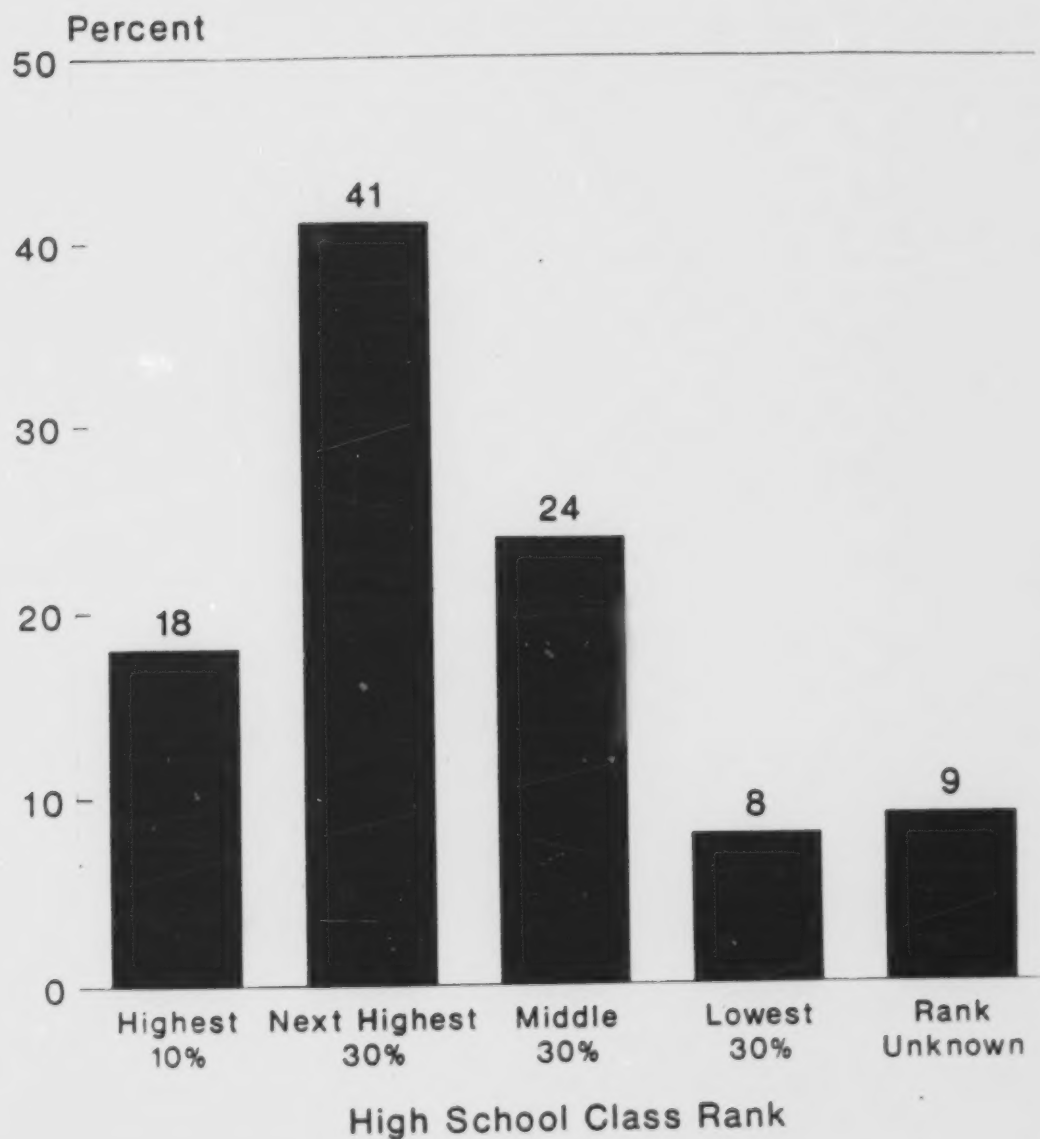
Percent Distribution of ACT Tested 1989 Entering Freshmen By ACT Score Interval



Source: ACT High School Profile, 1989
Average Score • 19.0
Number of Students Tested • 35,072

Almost 60 percent of Missouri's first-time entering freshmen rank in the upper 40 percent of their high school graduating class with 18 percent ranking in the upper 10 percent. This trend has remained stable since 1987.

High School Class Rank of 1989 Entering Freshmen*, Public Four-Year Institutions

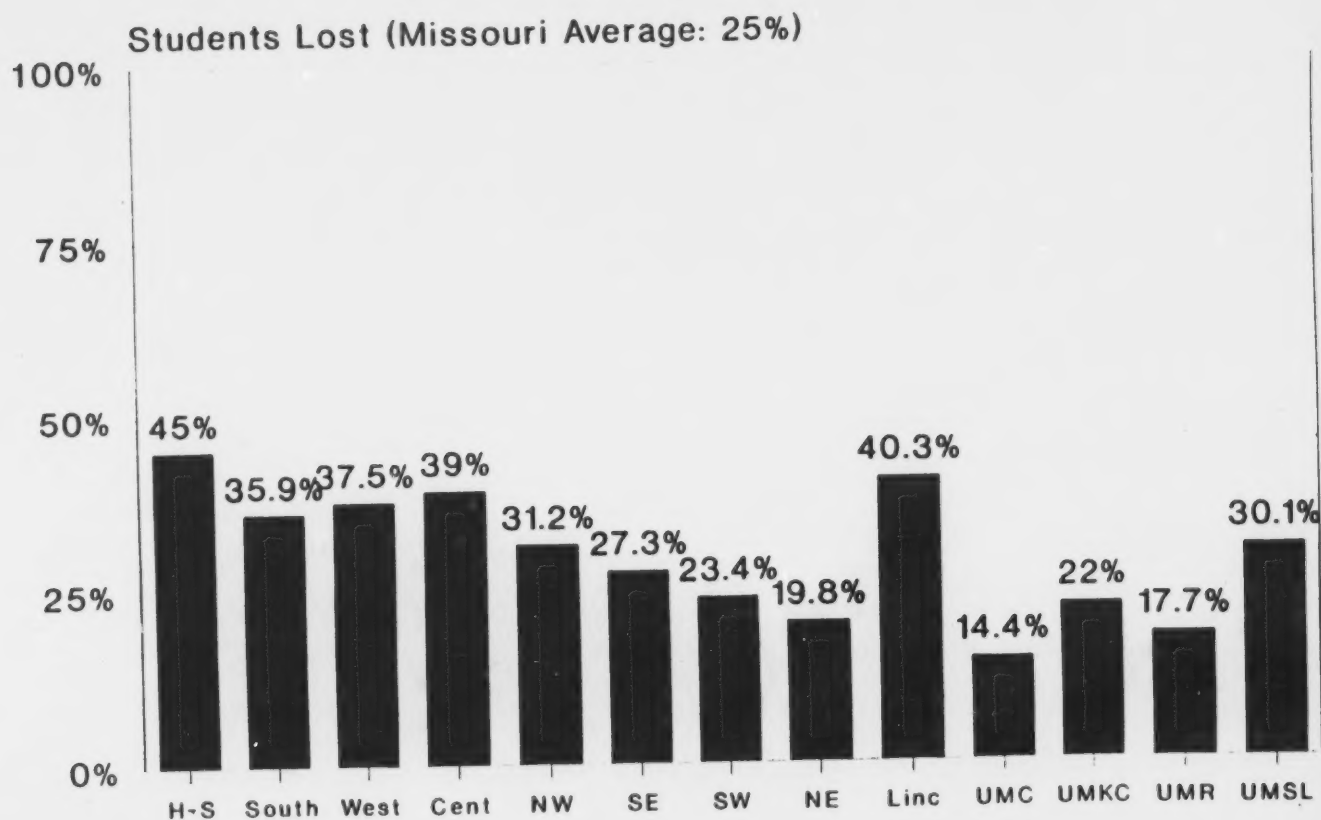


Source: Missouri Statistical Summary,
1989-1990

*First-time Entering and Degree Seeking

Twenty-five percent of the entering freshmen who took the ACT in the Fall of 1987 did not return the following fall as sophomores to the same institution at which they enrolled as freshmen. Other data suggest that as many as one-third of all students drop out after only one year of study, or less. It varies among our institutions from a low of 14 percent to a high of 45 percent. Yet almost 90 percent of those who entered said they wanted to attain a baccalaureate or higher degree, but more than 25 percent -- and maybe as many as a third -- drop out after the first year.

Freshman-to-Sophomore Attrition, 1987-88 1987 ACT-tested Freshmen

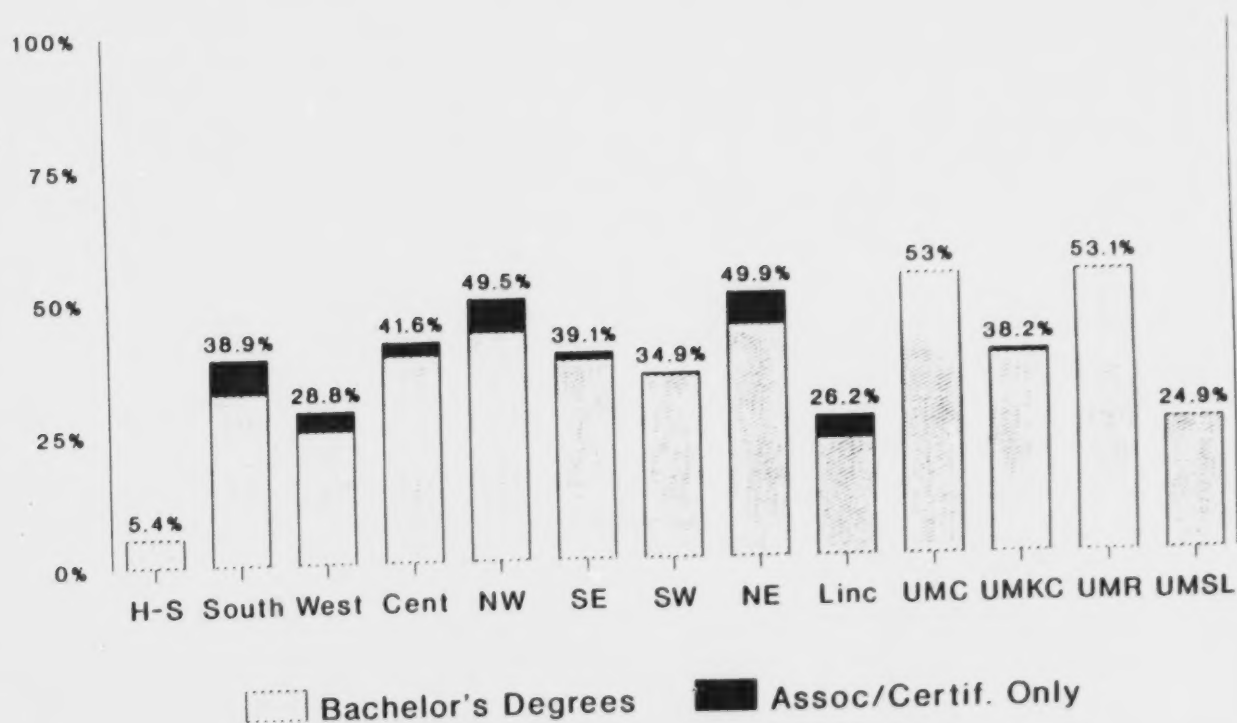


Note: Data for Harris-Stowe are based on a very small sample

In addition, when looking at the cohort that entered in Fall 1982, only about 40 percent of the entering freshmen, completed their degree program at the institution in which they originally enrolled after 6 years.

Matching students' aspirations and ability with the admissions requirements of the institutions is important and a subject related to issues of institutional mission differentiation.

Six-year Completions by Type, Fall 1982 - Spring 1988



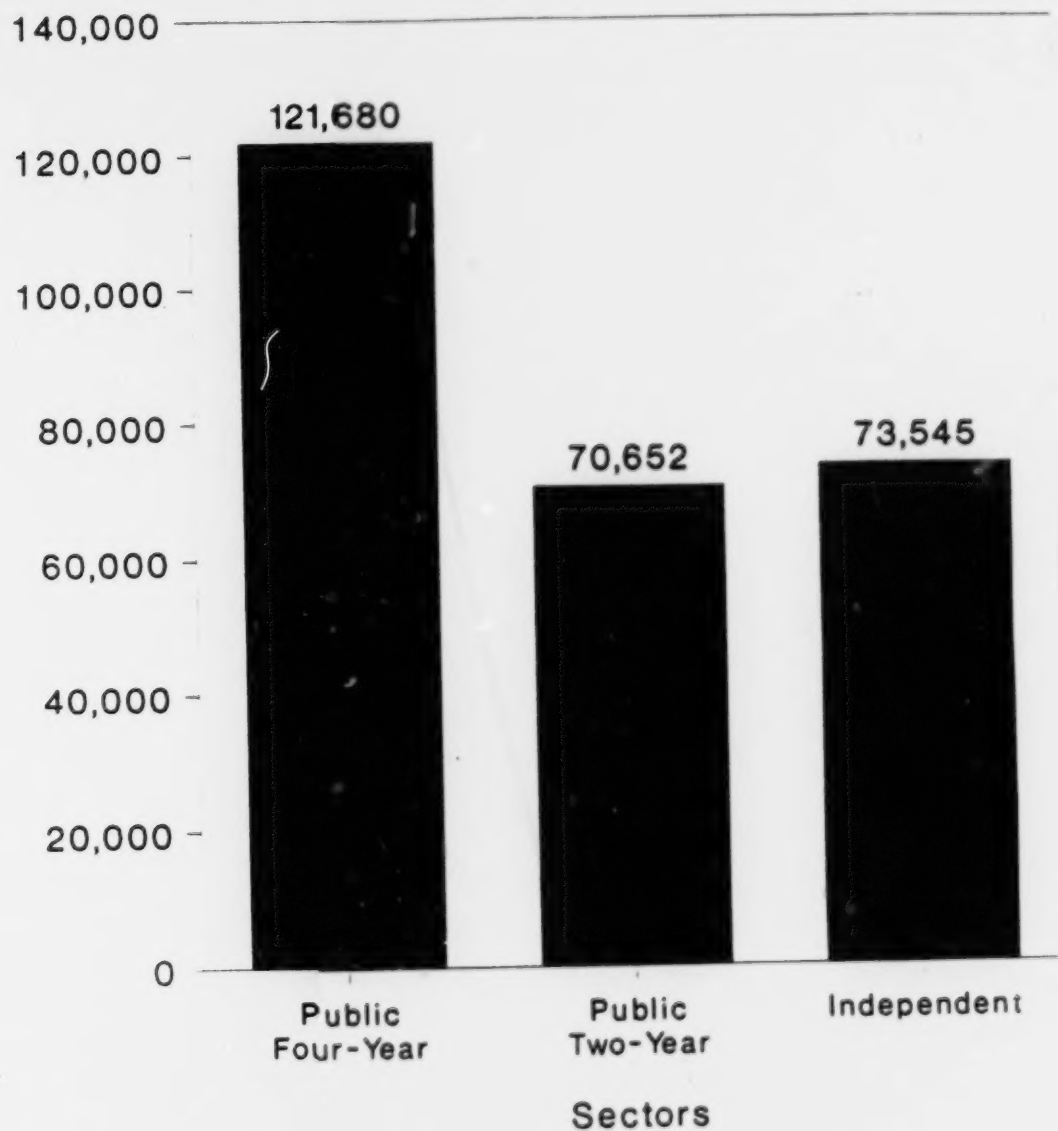
Source: Statewide Review of
Undergraduate Education, 1989

Following the review of students' aspirations and their preparation for college level work, is a review of the number of students our institutions are serving and some important characteristics of these students.

Student Characteristics

In the fall of 1989 Missouri public and independent colleges and universities enrolled nearly 266,000 students representing a full-time equivalency of nearly 182,000. The public two-year sector is nearly equal in size to the independent sector and represents 37 percent of the headcount in public higher education.

Total Headcount Enrollment in Missouri Higher Education, Fall 1989

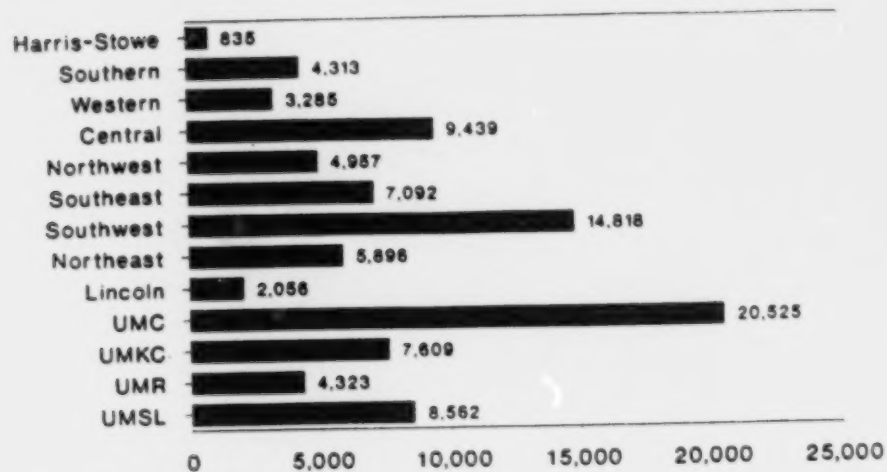


Source: Missouri Statistical Summary
1989-1990
Total • 265,877 FTE • 181,624

FTE enrollment at the four-year institutions ranges from just over 800 to more than 20,000.

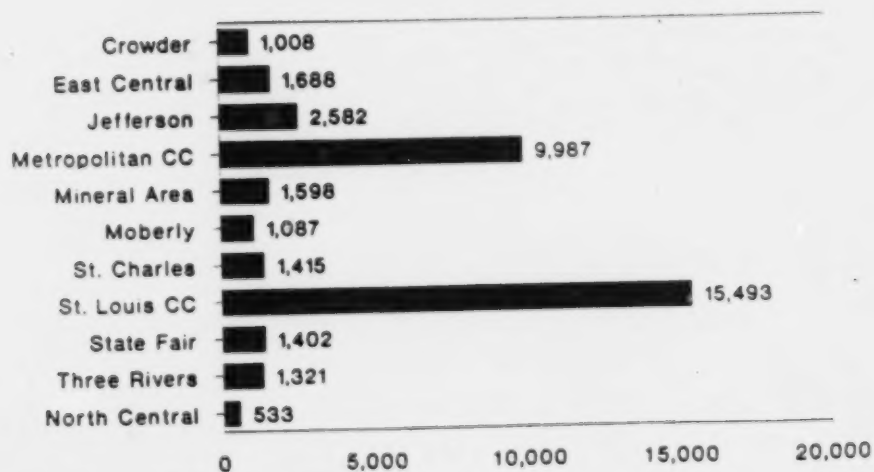
Among the community colleges, FTE enrollment ranges from just over 500 to more than 15,000.

Total FTE Enrollment, Public Four-year Institutions, Fall 1989



Source: Missouri Statistical Summary,
1989 - 1990

Total FTE Enrollment, Public Two-year Institutions, Fall 1989



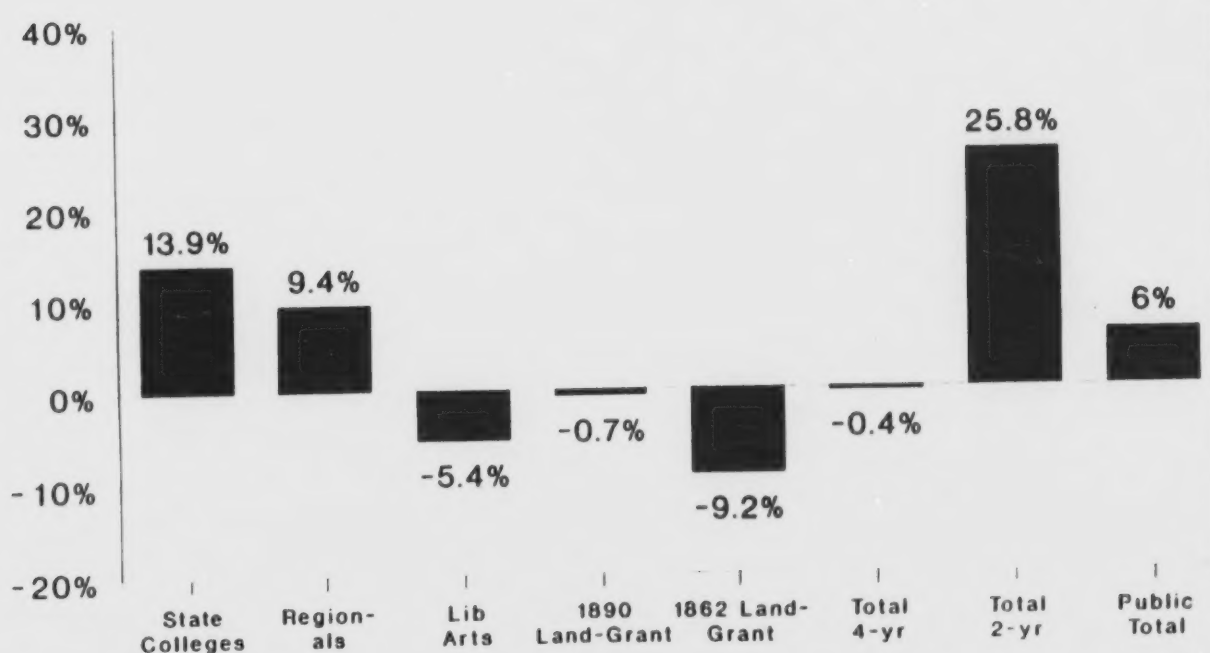
Source: Missouri Statistical Summary,
1989 - 1990

Between Fall 1981 and Fall 1989, total FTE enrollment increased 6 percent with the largest increase occurring in the community college sector. Among four-year institutions, state colleges experienced the largest growth.

Regional universities showed a 9.4 percent increase while the UM System and Northeast showed respective decreases of 9.2 and 5.4 percent. Thus, while major increases in FTE enrollment occurred in the two-year sector, FTE enrollment in the four-year sector has remained stable.

These enrollment trends have occurred despite a 16 percent decline in the number of high school graduates during that period. This has been partially offset by the increased participation of women.

% Change in Total FTE Enrollment, Missouri Public Institutions, Fall 1981 - Fall 1989



Note: Includes West Plains
Source: Missouri Statistical Summary
1989 - 1990

Many of our public four-year institutions are very local. They enroll students primarily from those counties in which the institution is located or adjacent to that county.

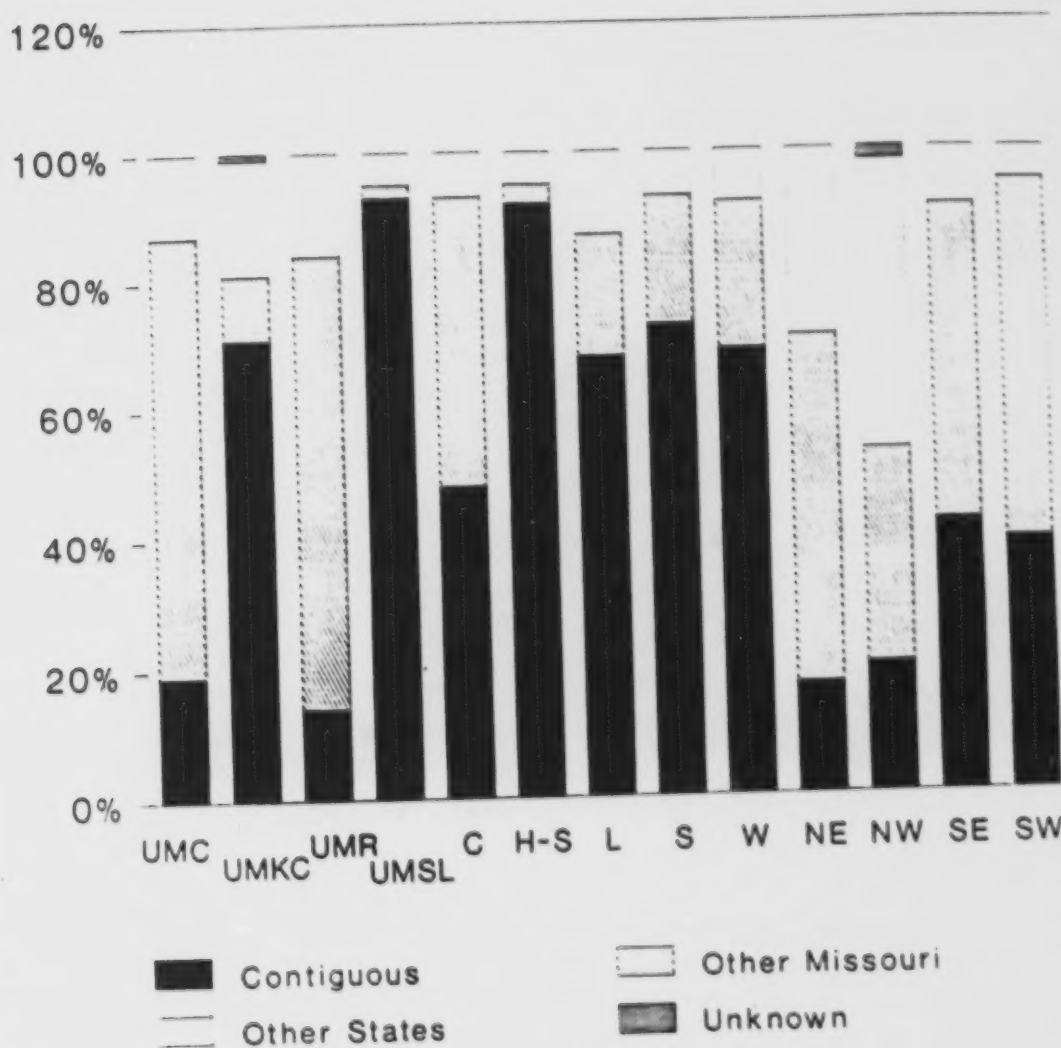
The University of Missouri-Kansas City and St. Louis campuses draw the largest proportions of their students from contiguous counties as do Lincoln University, Missouri Southern and Missouri Western.

The University of Missouri-Columbia and Rolla campuses draw large proportions of their students statewide as does Northeast.

Nearly 90 percent of the undergraduate enrollment in Missouri's public and independent colleges and universities are Missouri residents -- 88 percent in our public 4-year institutions, 97 percent in our public 2-year institutions, 71 percent in our independent 4-year institutions, and 37 percent in our independent 2-year institutions.

If Missourians are to obtain a quality higher education, our Missouri institutions must provide it -- unless the patterns of attendance change dramatically.

Geographic Origin of Undergraduate Students, Missouri Public Four-year Colleges & Universities, Fall 1989

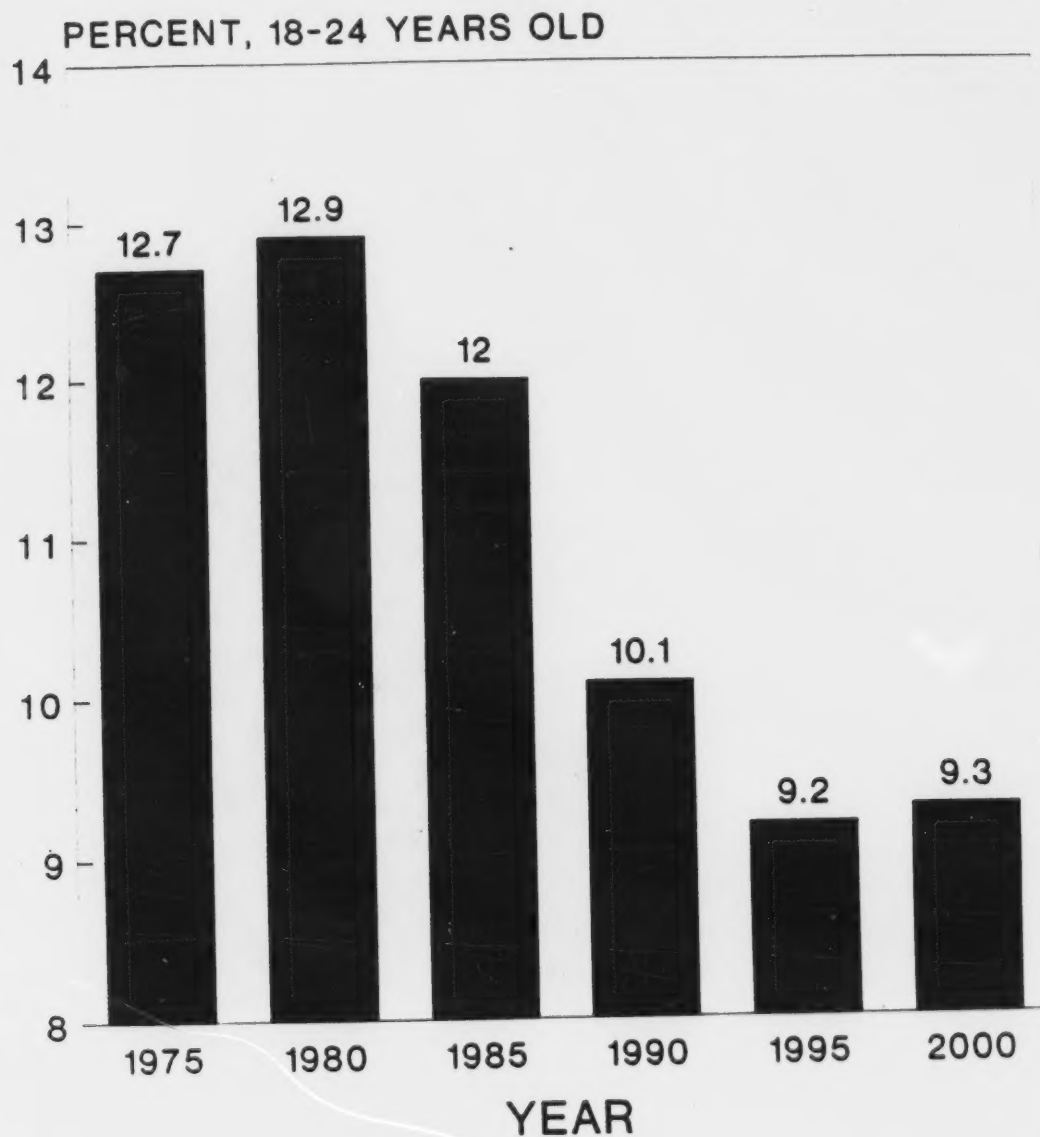


Source: Missouri Statistical Summary
1989 - 1990

Note: Other States includes U.S. territories
and foreign countries

By the year 2000, the traditional college-age population will comprise only 9.3 percent of Missouri's total population -- a decline of nearly 30 percent (-27.9%) since 1980. These are the students who are most likely to support our graduate and professional schools and who are most likely to enter the fields of science, mathematics, engineering, and other areas which support the manpower needs of the state. In a time of a diminishing workforce, it is very important that we do a great job with that specific population if we are to support those programs which are valuable to our economy.

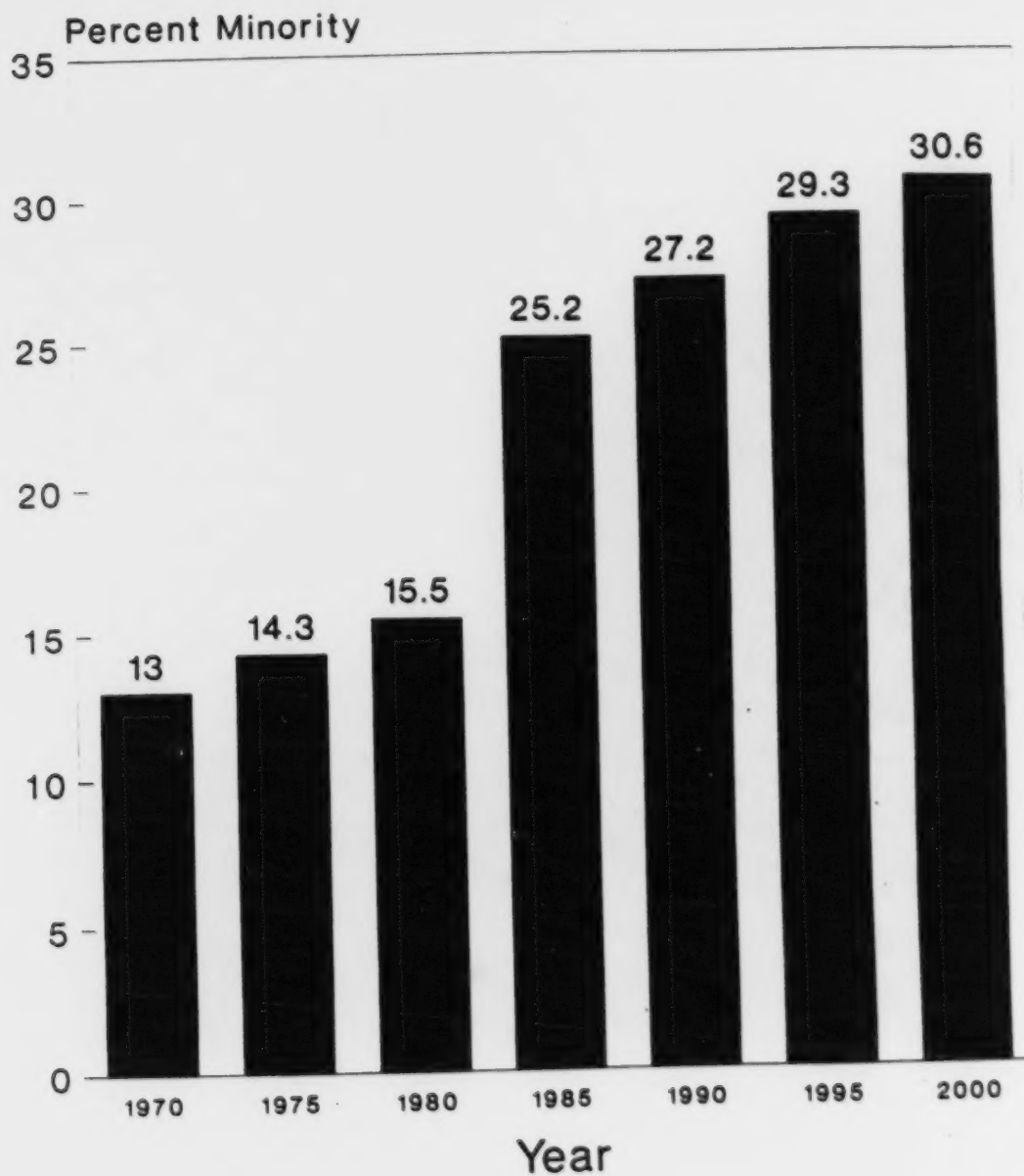
MISSOURI COLLEGE-AGE POPULATION 18-24 YEAR-OLDS



Source: U.S. Bureau of the Census,
National Center for Educ. Statistics
and Missouri Div. of Budget and Planning

Nationally, by the year 2000, minorities will comprise over 30 percent of the traditional college-age population (18 to 24 year-olds). This population represents a vital part of our talent pool and must receive our serious and careful consideration and plans for alternatives to enlist them in college and university programs.

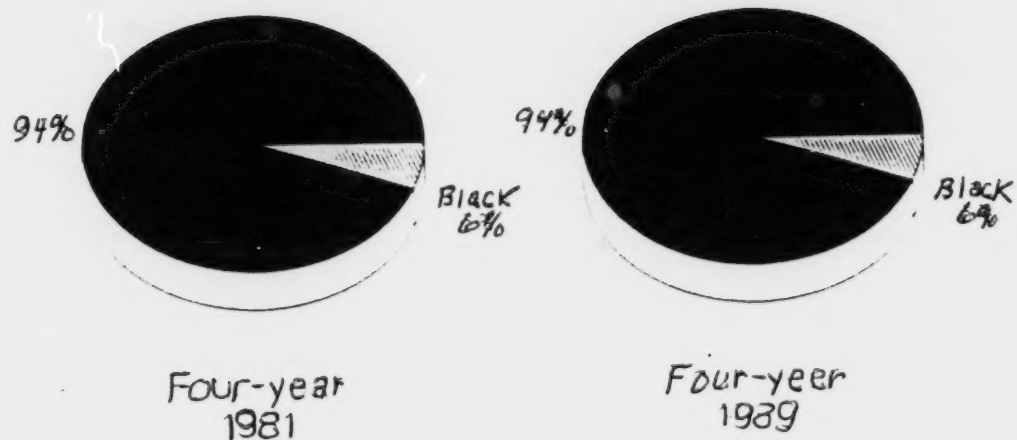
National Minority College-Age Population 18-24 Year-olds



Source: U.S. Bureau of the Census

While the total number of black students attending Missouri's public 4-year institutions has increased (from 6,923 in 1981 to 7,525 in 1989), their proportion of the total enrollment has not changed since 1981.

Blacks as a % of Total Headcount
Enrollment: Missouri Public
Institutions, Fall 1981 and Fall 1989



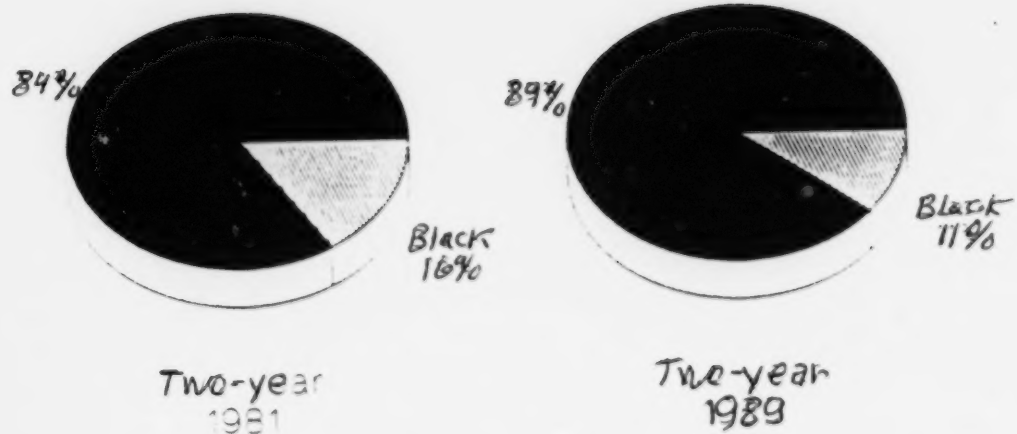
Source: Missouri Statistical Summary,
1989-1990

In 1989 Missouri's public 2-year colleges enrolled 916 fewer black students than in 1981, which is reflected in the 5 percentage point decline in blacks as a proportion of the total enrollment.

However, since 1986 black enrollment in both community colleges and four-year institutions has steadily increased. Total black enrollment for the entire system of Missouri public higher education has increased 15.1 percent since 1986 (from 13,557 in 1986 to 15,605 in 1989).

A partial explanation is the increased concern over the changing demographics occurring nationally and in Missouri.

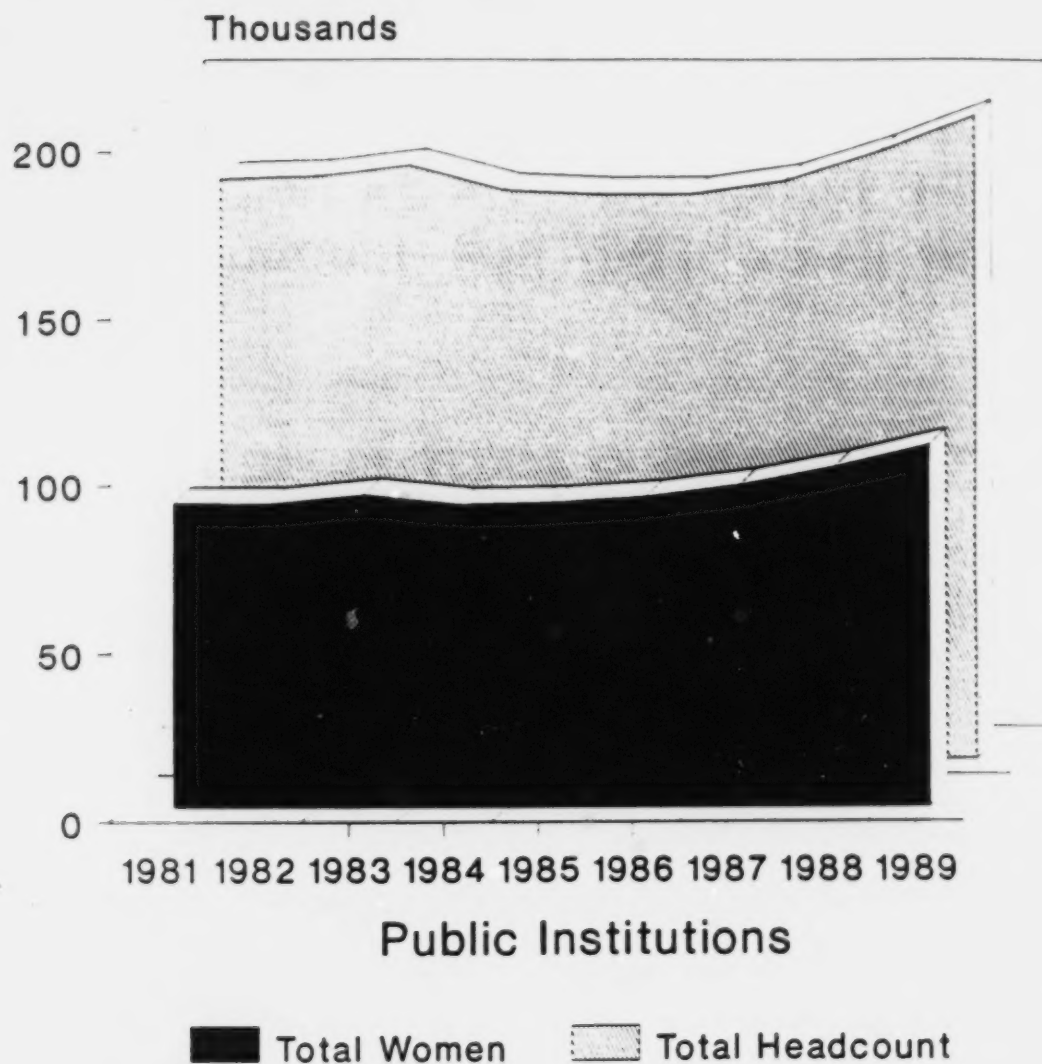
Blacks as a % of Total Headcount
Enrollment: Missouri Public
Institutions, Fall 1981 and Fall 1989



Source: Missouri Statistical Summary,
1989-1990

The total headcount enrollment of females increased 3 percent since 1981. Currently females comprise almost 56 percent of the total headcount enrollment at Missouri's public colleges and universities.

Historical Trend in Headcount of Women as a Proportion of Total Headcount, Fall 1981 to Fall 1989



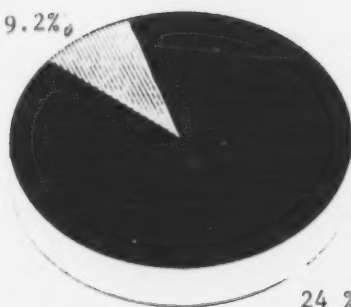
Source: Missouri Statistical Summary,
1989 - 1990

There is a slight increase in the proportion of the full-time undergraduate enrollment* at Missouri's public 4-year institutions who are over the age of 25 -- 1981 = 9.2 percent, 1989 = 11.2 percent.

Even so -- almost all of the action in the public 4-year sector is explained by the traditional college age group of 18-24 year-olds.

Full-Time Enrollment of Undergraduate Degree-seeking Students by Age, Public Institutions, Fall 1981 and Fall 1989

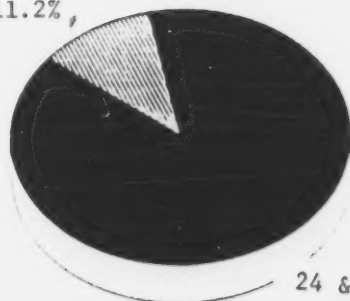
25 &
Over 9.2%



Four-year
1981

24 %
Under 90.8%

25 &
Over 11.2%



Four-year
1989

24 &
Under 88.8%

Source: Missouri Statistical Summary
1989-90, DHE-05

There has been an 8 percent increase in the proportion of full-time undergraduates over the age of 25 at Missouri's public 2-year institutions, increasing from nearly 20 percent of the total in 1981 to just under 28 percent in 1989.

Full-Time Enrollment of Undergraduate Degree-seeking Students by Age, Public Institutions, Fall 1981 and Fall 1989

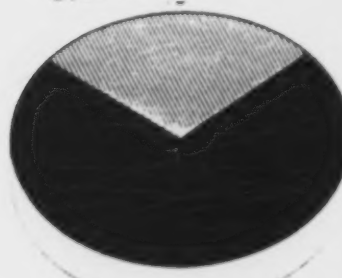
25 &
Over 19.7%



24 &
Under 80.3%

*Two-year
1981*

25 &
Over 27.7%



24 &
Under 72.3%

*Two-year
1989*

Source: Missouri Statistical Summary
1989-90, DHE-05

While enrollment and student characteristics data are essential to any overview, it is also important to review what programs of study our students are taking:

One way to view this is by examining trends related to Degrees Conferred.

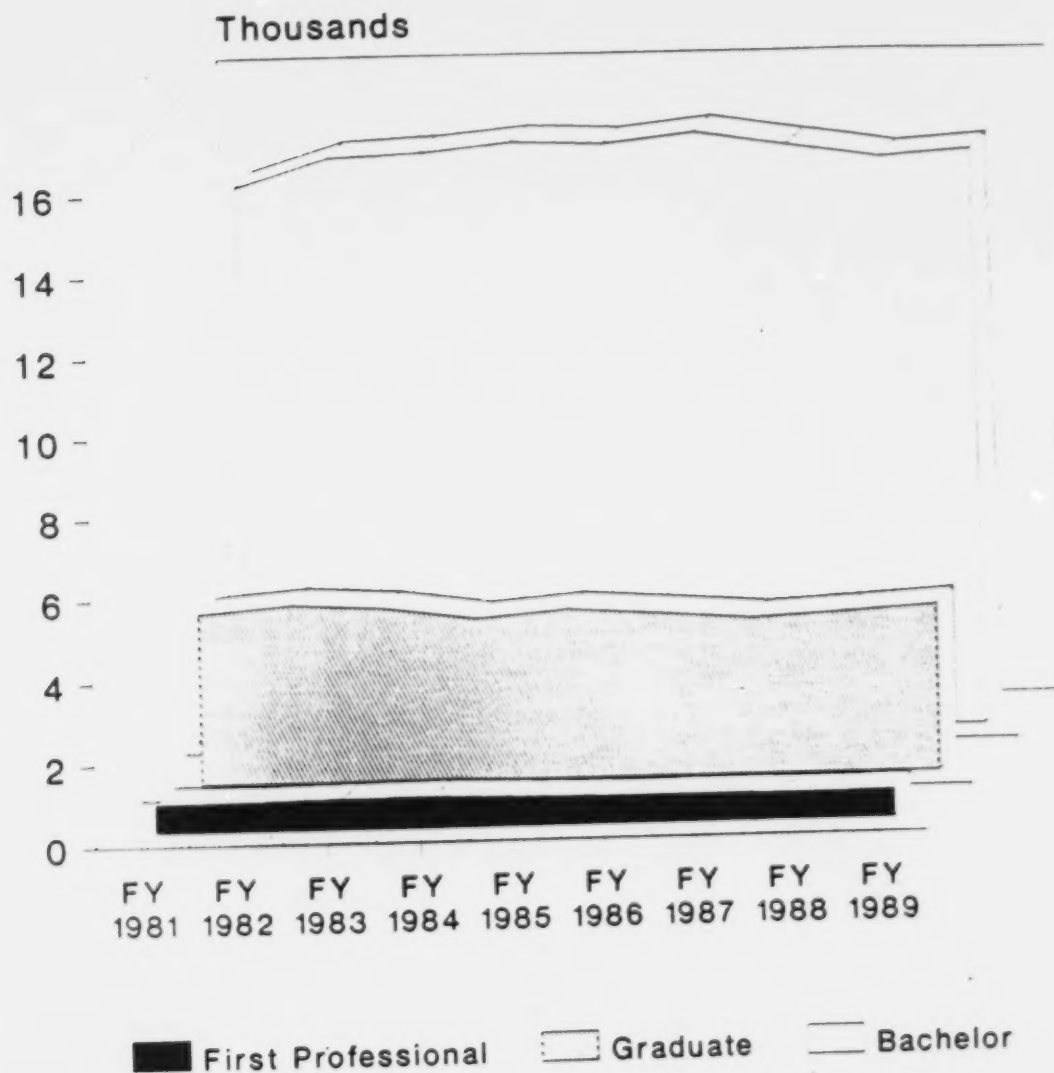
**Degrees Conferred
and
Program Resources**

In FY 1989 Missouri's public colleges and universities awarded 14,229 baccalaureate degrees, an increase of 5 percent over the number of baccalaureates awarded in 1981.

In FY 1989 3,715 master's degrees were awarded by Missouri's public colleges and universities, 4 percent fewer than in 1981.

The number of doctorates is fairly stable -- 278 in 1981 and 334 in 1989.

Historical Trend in Bachelor's, Graduate and First Professional Degrees, Public Institutions, FY 1981-FY 1989

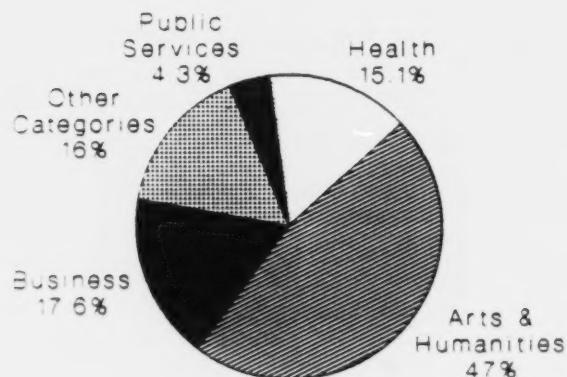


Source: Missouri Statistical Summary
1989 - 1990

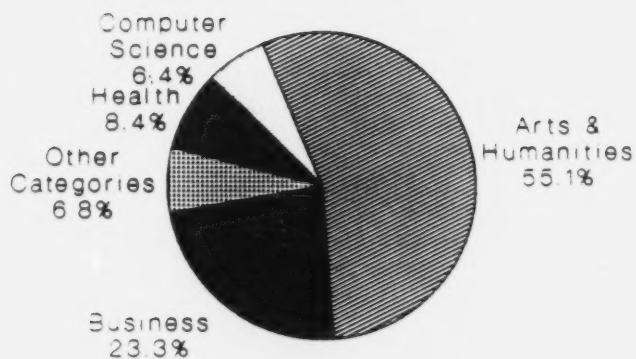
Most of the associate degrees are conferred by Missouri's 2-year institutions. They are typically in the arts and humanities. They are generally transfer-type degrees and 5,141 were awarded.

Bear in mind that, out of an enrollment of 70,000 students, many of those attending community colleges go directly into industry without finishing an associate degree program.

Associate Degrees Conferred by Discipline Areas, FY 1989



Public
Institutions



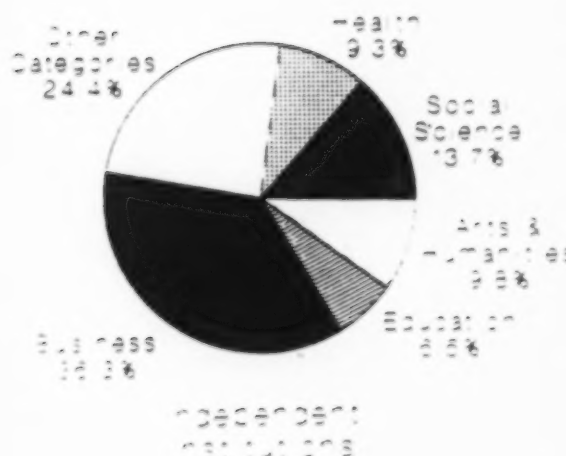
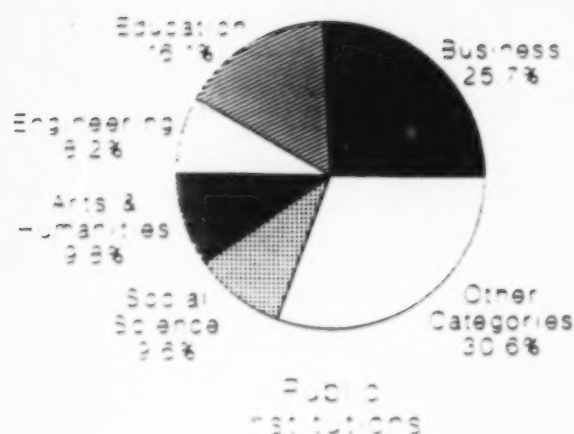
Independent
Institutions

Public Associate = 5,141
Independent Associate = 1,144

Over 40 percent of the baccalaureate degrees conferred by Missouri's public institutions are in business (25.7%) or education (16.1%). In a sense, we have two major areas of study accounting for over 40 percent of the baccalaureates.

Over 36 percent of the baccalaureate degrees conferred by the independent institutions are in business alone.

Baccalaureate Degrees Conferred by Discipline Area, FY 1989



Total Public • 14,229
 Total Independent • 8,549
 Source: MO Statistical Summary, 1989-90

Also of concern is the decline in the number of baccalaureate degrees conferred in 1989 in comparison to 1981 numbers, in selected disciplines important to the state's future economic competitiveness. The declines in the number of baccalaureate degrees conferred over 1981 levels are as follows: Agriculture, -38 percent; Engineering, -23 percent; Foreign Languages, -18 percent; Life Sciences, -14 percent; Physical Sciences, -27 percent.

Notice that in Foreign Language there were only 65 graduates out of 14,229 baccalaureates in the public sector. There are over 500 high school districts -- that's not even one per seven high school districts. Yet proficiency in a foreign language seems to be one of the factors that will keep us competitive in a world economy.

In the Physical Sciences -- which would include chemistry and physics -- 209 out of 14,229 graduates.

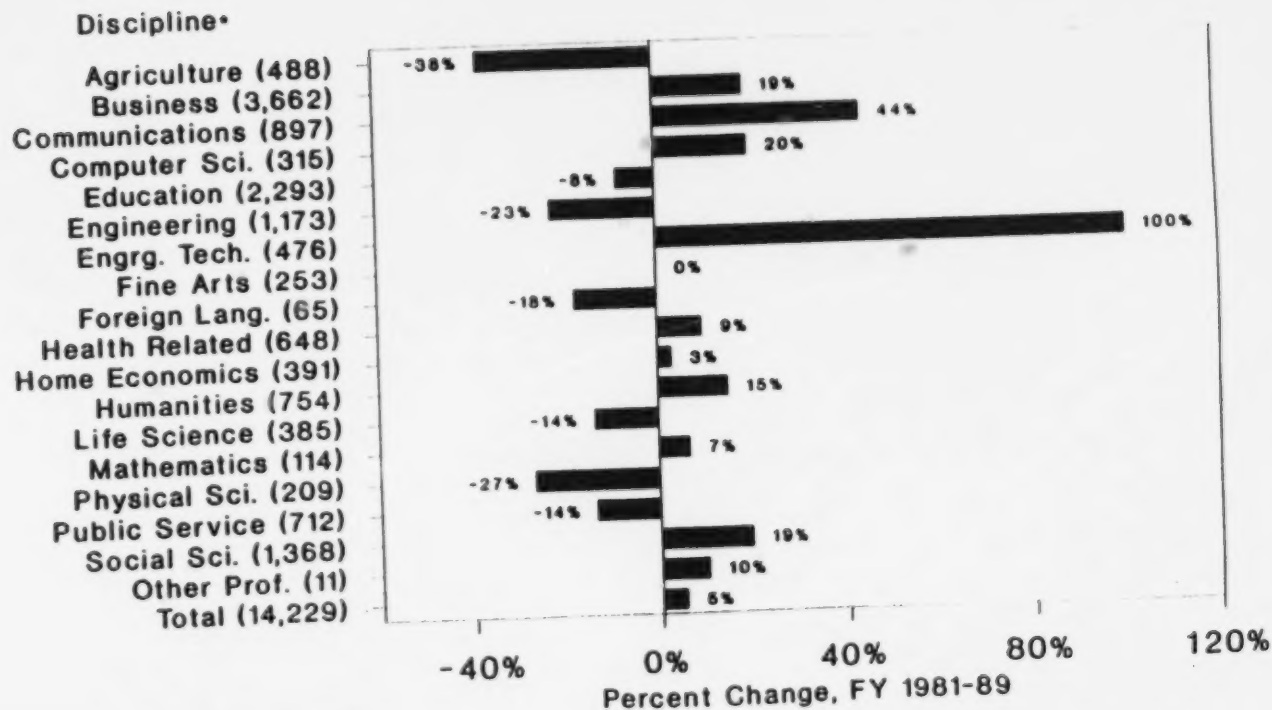
In Mathematics -- 114 out of 14,229 graduates.

It is important to analyze what is occurring beneath the rather nice statistic showing our enrollments to be rather stable. In a way its like a physical exam -- on balance one's appearance might suggest pretty good health -- but there may be something going on underneath which is going to change it. We don't have all the numbers of course -- we don't know how well our graduates do competitively -- on Graduate Records exams and other assessments of that type -- but we do have data in terms of what we are producing in critical areas.

COMPLETIONS

Public Institutions

Trend in Baccalaureate Degrees Conferred



* Number in parentheses indicates total baccalaureate degrees conferred in that category in FY 1989.

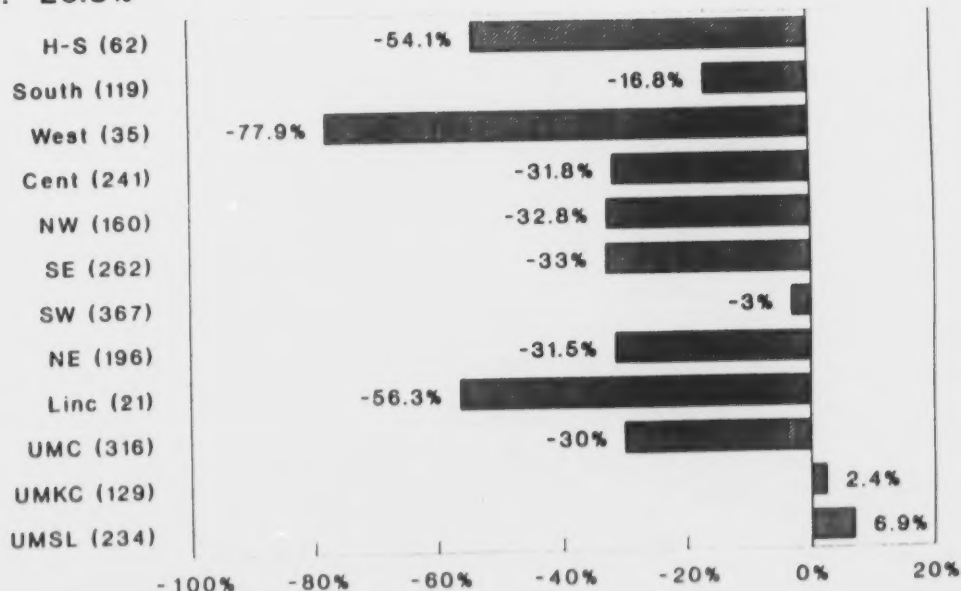
Associated with the decline in the the number of degrees conferred in education, data from the Department of Elementary and Secondary Education shows that almost 27 percent fewer teaching certificates were issued to graduates of Missouri's public colleges and universities in 1988-89 than in 1979-80.

Much of the decline in degrees conferred and certificates issued in education can be attributed to the availability of other career opportunities for women.

Gains in teacher education enrollments that are being reported nationwide should be analyzed. The gains are often in credit hour production -- but not a net gain in new teachers being certified. Since the average time to completion of a degree is now five to six years, it remains to be seen whether these enrollment increases will ultimately bear fruit. The news stories may be giving us a false sense of security.

Percent Change in Teacher Certifications Public Institutions, 1979-80 through 1988-89

Statewide change: -26.8%

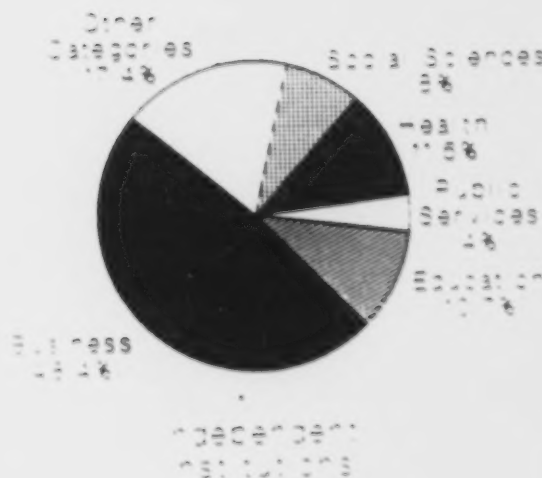


Numbers in parentheses indicate
number of certificates, FY 1988-89
Source: DESE

At the graduate level, education is the most popular field at public institutions while business is in higher demand at the independent institutions.

Twenty-six percent of the total degrees conferred by the University of Missouri system are at the masters and doctoral degree levels (UMC - 26%, UMKC - 29%, UMR - 26%, UMSL - 23%). Of the 2,714 masters and doctoral degrees conferred by the UM system, only 12 percent were awarded at the doctoral degree level. One-third of those 12 percent were in Education and Business. Thus, it would appear that increased productivity in core Arts and Sciences areas is indicated.

Graduate and First Professional Degrees Conferred by Discipline Area, FY 1989



Public Graduate • 4,729
Independent Graduate • 5,549
Source: MO Statistical Summary, 1989-90

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In examining the trends in doctoral degrees by discipline areas, we can see that Education doctorates are down 7 percent. There were no doctorates in Foreign Languages last year -- not even one. In the Life Sciences we are down 5 percent. In Mathematics we stayed even, but only granted 5 -- and of those 5, two were awarded to foreign nationals.

Note:

A total of 79 PhDs were awarded in Math, Physical Sciences and Engineering -- 39 of these PhDs (almost 50%) went to foreign nationals.

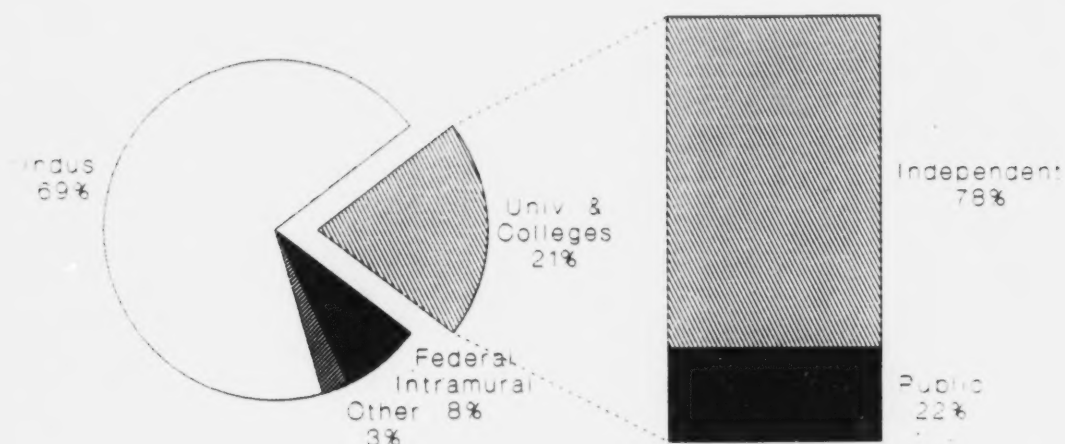
Historical Trend in Doctoral Degrees Conferred by Public Institutional Sector by Discipline Areas, FY 1981 to FY 1989

	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	%Change 81 - 89
1862 Land-Grant										
01 Agriculture	17	21	19	28	34	26	21	19	27	59%
02 Business	8	11	9	11	8	2	4	3	9	13%
03 Communications	3	4	1	5	6	6	6	8	3	0%
04 Computer Science	1	1	2	1	1	1	5	2	5	400%
05 Education	110	96	121	104	97	106	89	97	102	-7%
06 Engineering	36	19	36	33	29	44	41	51	53	47%
07 Eng/Science-Rel. Tech	0	0	0	0	0	0	0	0	0	0%
08 Fine Arts	5	10	6	6	12	6	8	10	11	120%
09 Foreign Language	5	1	2	0	1	1	0	3	0	-100%
10 Health	1	1	3	14	11	9	10	12	16	1500%
11 Home Economics	2	6	5	4	3	2	6	9	3	50%
12 Humanities/General	3	6	4	16	10	10	8	8	13	333%
13 Life Science	22	33	10	16	16	9	7	15	21	-5%
14 Mathematics	5	5	8	4	3	6	7	5	5	0%
15 Physical Science	20	30	12	20	23	22	24	27	21	5%
16 Public Services	0	0	0	0	0	0	0	0	0	0%
17 Social Science	40	34	38	58	50	46	46	52	45	13%
18 Other Professional	0	0	0	0	0	0	0	0	0	0%
19 Vocational Technical	0	0	0	0	0	0	0	0	0	0%
20 Avocational	0	0	0	0	0	0	0	0	0	0%
Public College & University Total:	278	278	276	320	304	296	282	321	334	20%

A related issue to the strength of graduate education is the ability to attract funds for research. In FY 1987 Missouri was awarded \$614.6 million in federal obligations for research and development. Of that \$614.6 million, industry grants and contracts accounted for over \$424 million (69%). Of the additional dollars awarded to institutions of higher education (over \$128 million), 78 percent was awarded to Missouri's independent research universities.

The implication is not what the state spends on research -- but reflects the relative ability of the faculty to compete successfully for research funds awarded competitively. Securing additional research funds is crucial for adding prestige and stature to graduate and research education in Missouri.

FEDERAL OBLIGATIONS FOR RESEARCH AND DEVELOPMENT IN MISSOURI FY 1987 (Total = \$614.6 million)



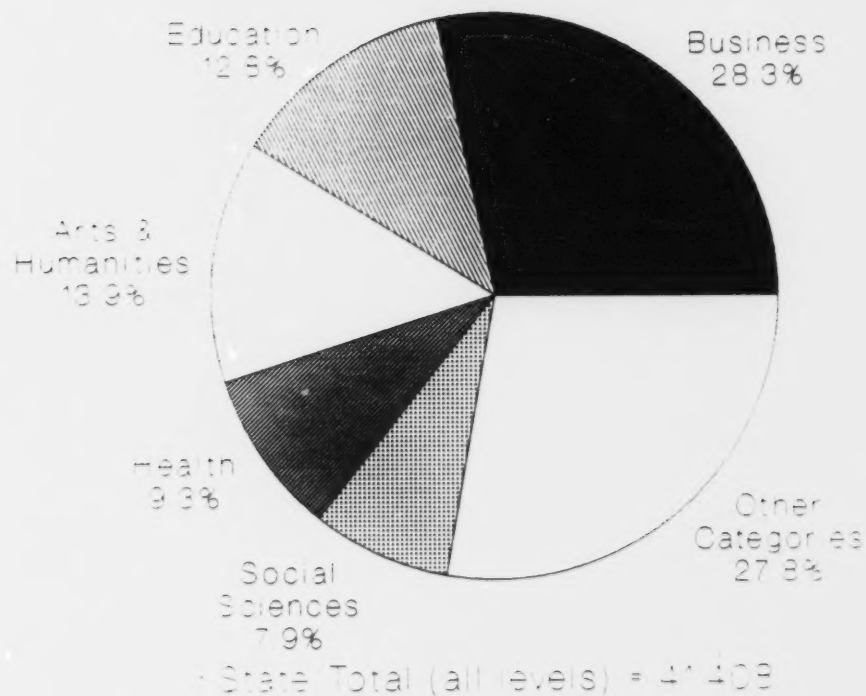
Source: National Science Foundation

Statewide, at all degree levels, 41 percent of all degrees conferred are in business (28.3%) or education (12.8%).

Other categories listed include Physical Science, Mathematics, Foreign Languages, and so forth.

Many of these other program categories will drive the economy in the 21st Century but the numbers of degree recipients in these disciplines are so small that they don't make the chart as a separate category.

Total Degrees Conferred, All Levels, Public and Independent Institutions, FY 1989



Source: Missouri Statistical Summary,
1989-1990

It is easy to see that our academic programs are indeed a state resource, but from this chart you can see that program changes, approvals and deletions, have been rather modest.

This chart also demonstrates that we have not had major program reform or refinement of institutional missions in Missouri's public institutions.

Coordinating Board for Higher Education
Summary of Program Actions
Public Two- and Four-year Institutions
Fiscal Year 1984 - April 30, 1990

	Number of Programs Changed (a)	Number of Programs Ap- proved	Number of Programs Deleted	Program Placed on Inactive Status
Four-year Institutions				
University of Missouri-Columbia	64	1	15	0
University of Missouri-Kansas City	42	1	5	0
University of Missouri-Rolla	3	1	1	0
University of Missouri-St. Louis	5	7	1	0
Lincoln University	0	0	1	0
Northeast Missouri State University	27 (b)	1	80	0
Central Missouri State University	45	2	25	0
Harris-Stowe State College	0	0	0	0
Missouri Southern State College	1	1	8	0
Missouri Western State College	7	2	14	0
Northwest Missouri State University	2	0	31	0
Southeast Missouri State University	11	2	24	1
Southwest Missouri State University (c)	21	1	44	0
Total	228	19	255	1
Two-year Institutions				
Crowder College	3	3	0	0
East Central College	0	2	2	0
Jefferson College	3	3	0	0
Longview Community College	10	4	0	0
Maple Woods Community College	10	3	0	0
Penn Valley Community College	18	5	4	5
Pioneer Community College (d)	0	2	0	0
Mineral Area College	0	2	0	0
Moberly Area Junior College	0	0	0	0
North Central Missouri	0	3	0	0
St. Charles County Community College	6	0	0	0
St. Louis Community College-Flo. Valley	2	6	0	0
St. Louis Community College-Forest Park	4	7	0	0
St. Louis Community College-Meramec	1	6	0	0
State Fair Community College	0	1	0	0
Three Rivers Community College	5	0	2	0
Total	62	47	9	5
Grand Total	290	66	264	6

- a. Program changes include changes in degree designation, changes of program titles, additions of program options, combinations of program options into new options, and deletions of program options.
- b. Included in the number of program changes are six proposed programs that have been developed to implement the institution's new statewide mission, but which will not be submitted for review until the institution's five-year planning cycle is completed in 1992.
- c. Figures reported for Southwest Missouri State University include data for the West Plains campus.
- d. In May 1987 Pioneer and Penn Valley combined resources into a single institution known as Penn Valley.

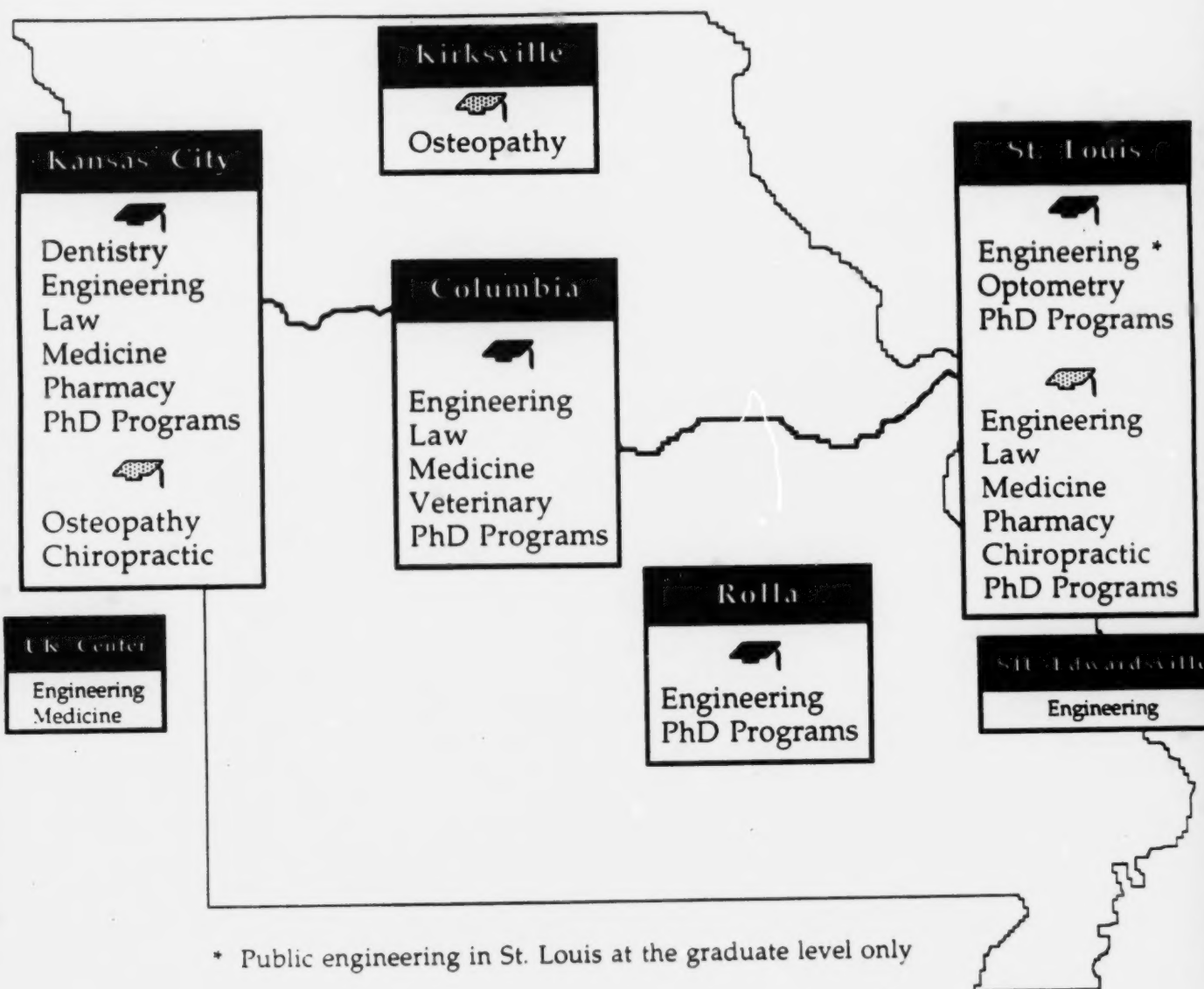
Here we show the variety of professional and engineering programs available.

Note that engineering is currently available also at SIU - Edwardsville, just across the Mississippi River.

There are also engineering programs at Southern Illinois University at Edwardsville offering: Bachelor's degree programs in Civil, Electrical, Engineering Science, Industrial, and Mechanical Engineering; Master's degree programs in Civil and Electrical Engineering; but no PhD programs.

The Regents' Center of the University of Kansas City, does not have an undergraduate engineering program. Through the University of Kansas-Lawrence, however, Masters degrees can be earned in: Engineering, Civil, Architectural and Engineering Management. Some classes are offered in Mechanical Engineering, however, a degree cannot be earned in this field at the Regent's Center. In-state and out-of-state fees are the same - \$86 per credit hour beginning in Fall 1990.

First Professional, Doctoral, and Engineering Programs in Missouri and Surrounding Areas



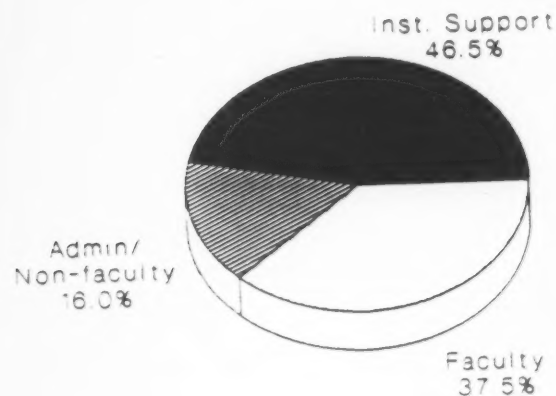
-  Programs available at public institutions
-  Programs available at independent institutions

Higher education is labor intensive and our faculty and staff are essential to the vitality of our system of higher education.

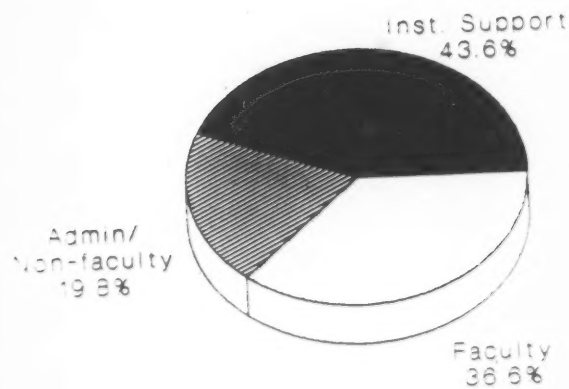
Faculty Characteristics

This chart shows that Missouri higher education has experienced an increase in the proportion of total employees comprised of administrative and nonfaculty personnel between 1981 and 1989. The proportion of administrative personnel is 25 percent higher in 1989 over 1981 staffing levels (from 16% of the total in 1981 to almost 20% in 1989).

Number of Full-time Employees by Occupational Activity, Public Institutions, Fall 1981 and Fall 1989



Fall 1981
Full-time Employees: 18,632

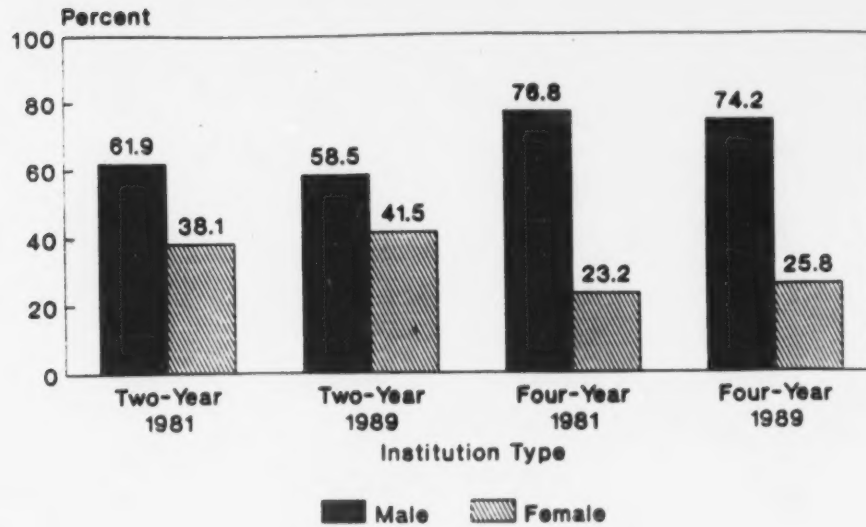


Fall 1989
Full-time Employees: 20,111

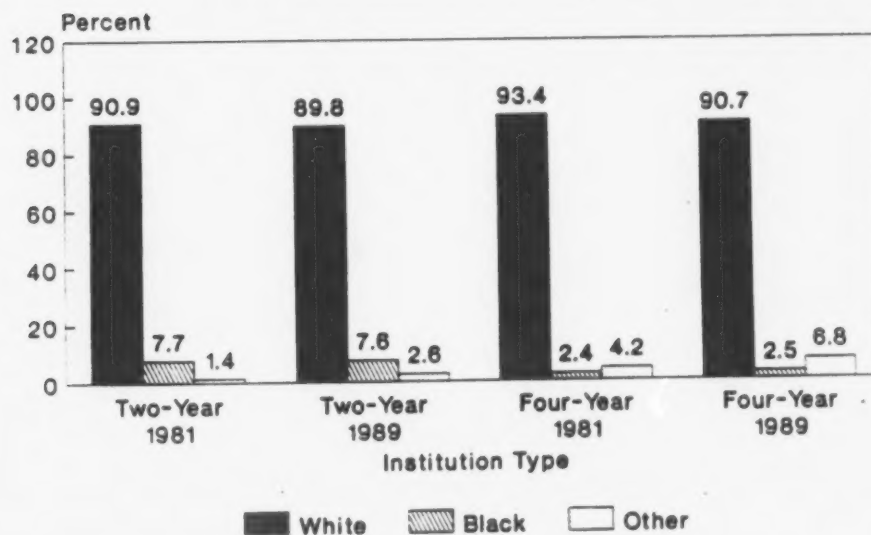
As you can see, our faculty are predominately male, however, female faculty, both in absolute numbers and as a proportion of the total, have increased since 1981.

The recruitment and retention of both minority and female faculty are critical issues in increasing the cultural diversity of our institutions, both in Missouri and nationally.

Gender of Full-Time Faculty at Public Institutions, Fall 1981 and Fall 1989



Ethnicity of Full-Time Faculty at Public Institutions, Fall 1981 and Fall 1989



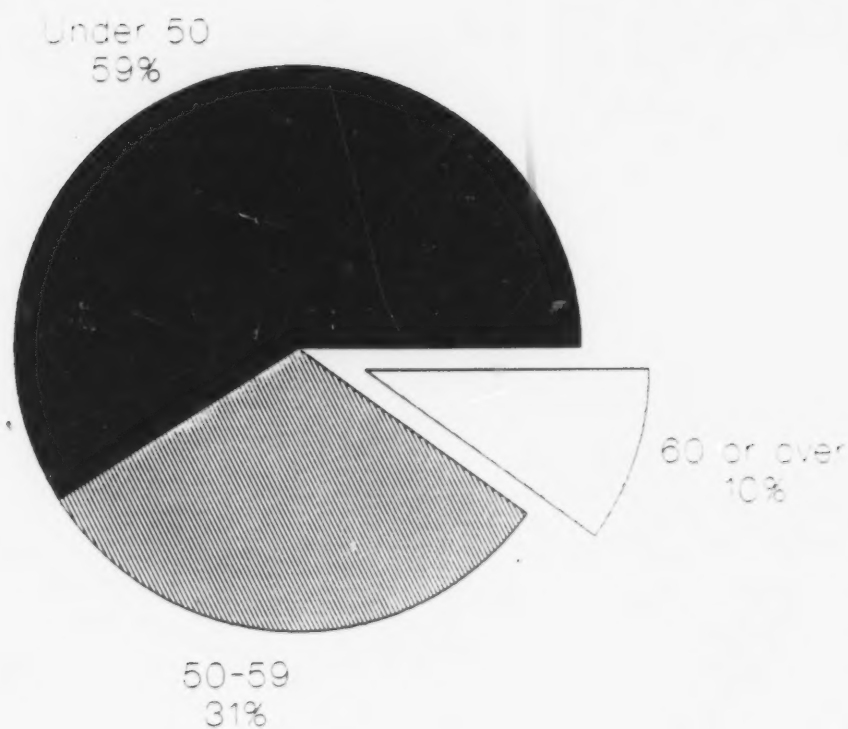
Source: Coordinating Board for Higher Education, 1990

Looking down the road in terms of what might happen during the next 20 years

Forty-one percent of the faculty of Missouri's public colleges and universities will need to be replaced. This may be difficult since there is a national shortage of potential faculty in the pipeline. This relates to some of the figures you saw earlier on degree completions in our graduate programs -- which further illustrates that the pipeline is rather empty.

Specific policy initiatives will be needed to ensure an adequate supply of faculty, which suggests a need for further emphasis on graduate education.

Percent Distribution of Faculty by Age Category, Fall 1989



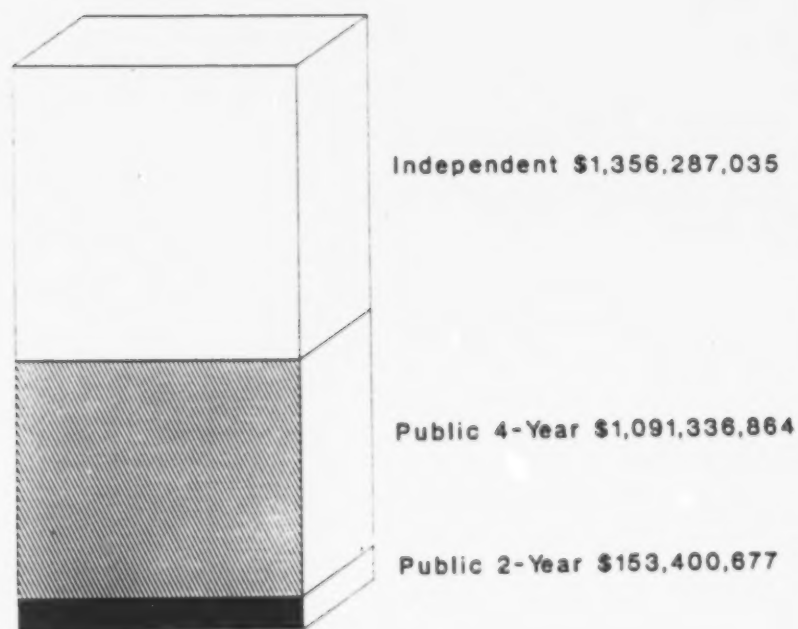
Public institutions only
Source: Missouri Statistical Summary
1989-90

No overview of higher education would be complete without some presentation of the financial and physical plant characteristics of our system of higher education.

Financial and Physical Plant Characteristics

Missouri higher education is big business. In FY 1989 the combined revenues of Missouri's public and independent colleges and universities exceeded \$2.6 billion. A conservative multiplier of 3 would show Missouri higher education as having a combined economic impact of about \$8 billion on the State of Missouri.

CURRENT FUND REVENUES FOR MISSOURI PUBLIC AND INDEPENDENT INSTITUTIONS, FY 1989



TOTAL CURRENT FUND REVENUES FOR ALL
MISSOURI PUBLIC AND INDEPENDENT
INSTITUTIONS • \$2,601,024,576

Source: Missouri Statistical Summary, 1989-90

In current dollars, general revenue for Missouri's public colleges and universities is almost \$252 million more in FY 1989 than in FY 1981 (FY 1981 = \$369 million, FY 1989 = \$621 million)

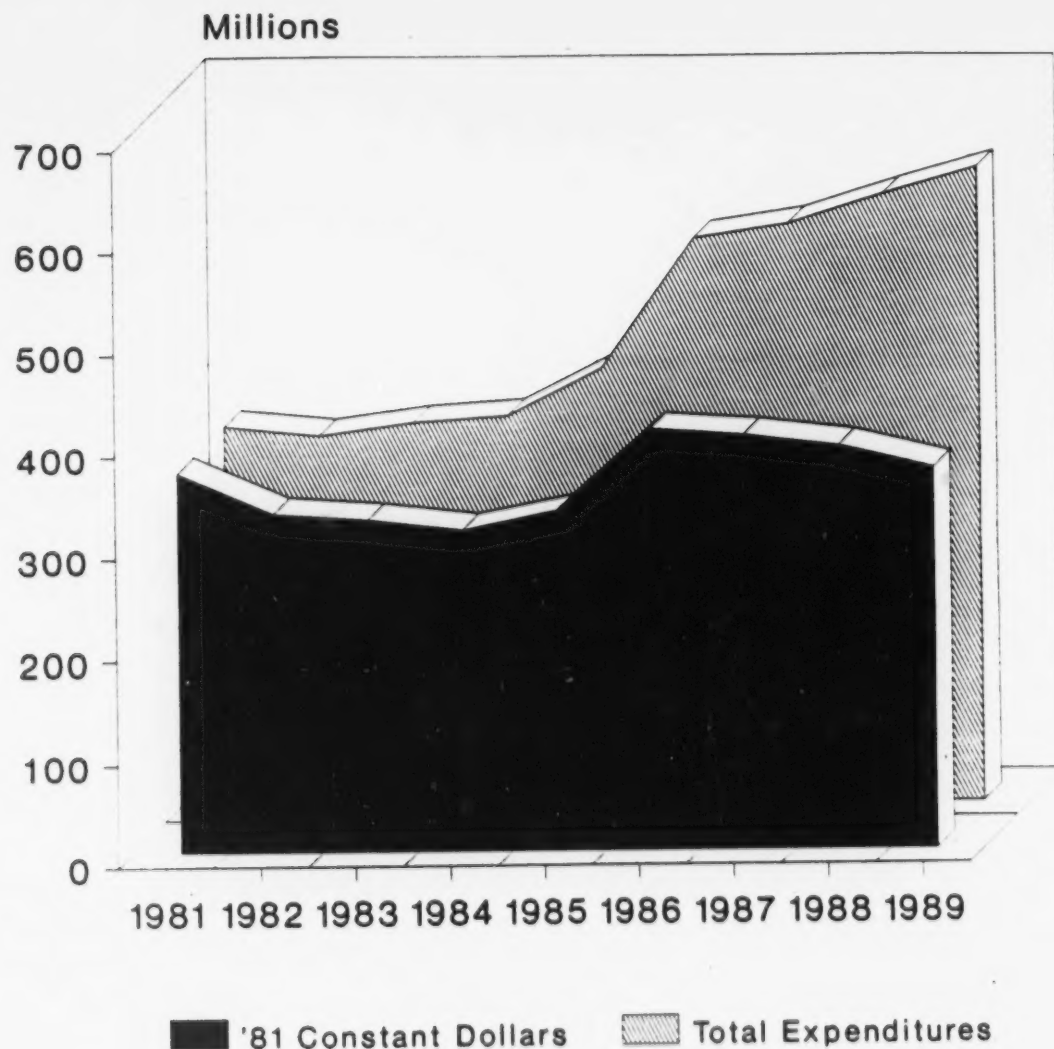
In constant 1981 dollars however, the purchasing power of Missouri's institutions in FY 1989 is only about \$2.3 million more than in FY 1981.

Furthermore, state appropriations for higher education declined from a high of 18.7 percent of general revenue in FY 77 to 15.8 percent in FY 90. It would cost the state an additional \$112 million to return to the FY 77 level (18.7%). The same slippage in the percentage of state support has occurred nationally. Part of this slippage has resulted from the shifting of federal support of many social programs to the state.

Higher Education's Percent of General Revenue:

FY 1977 -- 18.7%	FY 1984 -- 14.8%
FY 1978 -- 17.8%	FY 1985 -- 14.3%
FY 1979 -- 17.9%	FY 1986 -- 15.7%
FY 1980 -- 16.9%	FY 1987 -- 14.8%
FY 1981 -- 16.4%	FY 1988 -- 14.9%
FY 1982 -- 16.0%	FY 1989 -- 14.3%
FY 1983 -- 15.6%	FY 1990 -- 15.3%

GENERAL REVENUE EXPENDITURES FOR ALL INSTITUTIONS AND PROGRAMS FOR HIGHER EDUCATION, FY 1981 TO FY 1989



Adjusted for inflation by the CPI.
Source: Office of Administration -
Appropriation Activity Report

The public four-year institutions' proportion of total revenue from the general revenue appropriation declined 7 percentage points between FY 1981 and FY 1989. In FY 1981 four-year institutions received 71.4 percent of their total appropriation from general revenue. By FY 1989, that percent had dropped to 64.3 percent.

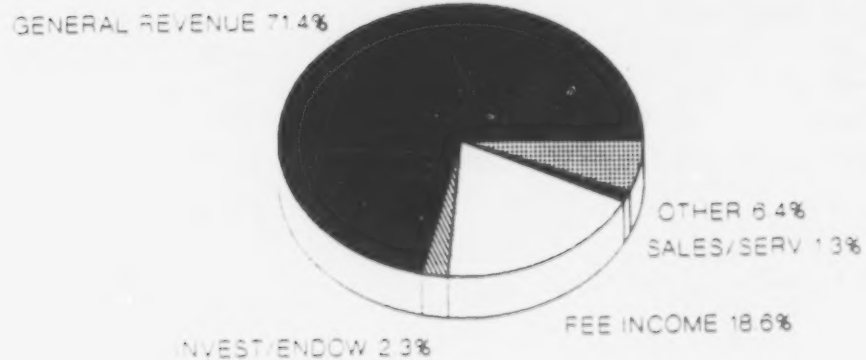
During the same period, the proportion of revenue derived from fee income increased over 8 percentage points -- from 18.6 percent to 26.8 percent.

This clearly shows a shift in the financing of higher education from Missouri to the students -- which is occurring nationally.

Our rank relative to other states was not affected -- but the amount borne by students was.

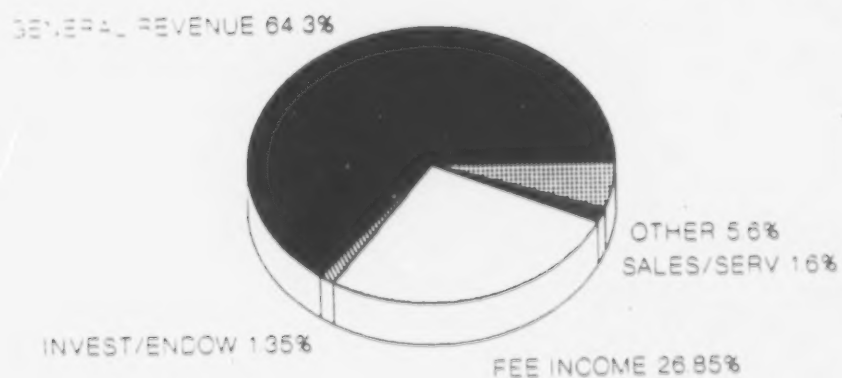
Nevertheless, student fees in Missouri's colleges and universities are below the national average (See subsequent page).

FOUR-YEAR PUBLIC INSTITUTIONS SOURCES OF REVENUE, FY 1981



Source: CBHE Form 1

FOUR-YEAR PUBLIC INSTITUTIONS SOURCES OF REVENUE, FY 1989



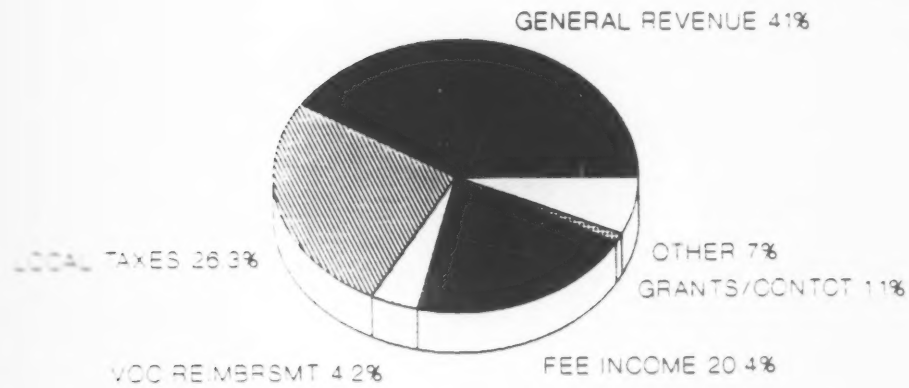
Source: CBHE Form 1

Missouri is one of 24 states which finances its community colleges with both state general revenue and local taxes, as well as with student fees (19 states finance their community colleges solely from state general revenue).

The proportionate increase in revenue from student fees noted for the four-year institutions has occurred also in the two-year sector, but to a lesser extent. That might be partially explained by the fact that two-year colleges must secure a vote in order to raise their fees as a result of the Hancock Amendment.

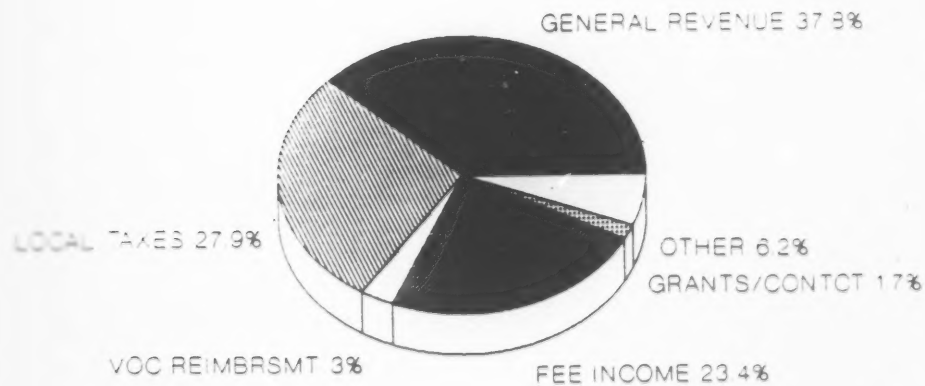
(HANCOCK AMENDMENT - The Hancock Amendment was passed in the early 1980's. The first test of the amendment occurred when St. Louis Community College raised its fees. After raising its fees, St. Louis Community College was challenged in a court case for allegedly violating the Hancock Amendment. The trial court decided against the district. Instead of appealing the ruling, St. Louis Community College called an election to raise its fees, and the proposition passed. All community colleges have followed this per their legal counsel. In summary, there have been no fee increases by community colleges since passage of the Hancock Amendment except by an election.)

**TWO-YEAR PUBLIC INSTITUTIONS
SOURCES OF REVENUE, FY 1981**



Source: CBHE Form 1C

**TWO-YEAR PUBLIC INSTITUTIONS
SOURCES OF REVENUE, FY 1989**



Source: CBHE Form 1C

State support for higher education is often expressed as an appropriation per capita or appropriation per \$1,000 of personal income. On these measures of support for higher education Missouri is ranked near the bottom nationally and at the bottom of the proposed Midwest Compact states. However, appropriations per capita can be misleading if not viewed in the proper context.

For example, notice North Dakota which ranks 6th on per capita appropriations and 3rd on appropriations per \$1,000 personal income. These rankings reflect North Dakota's relatively small population and the necessity of maintaining a higher education infrastructure, regardless of its population and revenue base.

But look at what happens when we compare states on the basis of what public colleges and universities have to spend on instruction and other academic support functions as expressed in terms of their per student appropriations for higher education as shown on the next chart. ---

STATE GENERAL REVENUE APPROPRIATIONS FOR PUBLIC HIGHER EDUCATION OPERATING EXPENSES
FISCAL YEAR 1990

State	Higher Education Appropriations (in Thousands)	Per Capita Appropriation			Appropriation Per \$1,000 Personal Income		
		% of National			% of National		
		Amount	Average	Rank	Amount	Average	Rank
<u>Proposed Midwest Compact States</u>							
Minnesota	\$946,779	\$220.28	138%	5	\$13.19	135%	11
North Dakota	\$139,911	\$210.71	132%	6	\$16.34	168%	3
Nebraska	\$290,491	\$182.70	112%	10	\$12.27	126%	13
Iowa	\$502,293	\$180.68	111%	12	\$12.09	124%	14
Kansas	\$444,778	\$178.99	112%	14	\$11.31	116%	17
Wisconsin	\$795,383	\$165.60	104%	19	\$10.55	108%	23
Michigan	\$1,408,009	\$151.95	95%	24	\$9.21	95%	36
Indiana	\$814,021	\$146.88	92%	30	\$9.82	101%	29
Illinois	\$1,675,322	\$144.44	91%	33	\$8.21	84%	41
Ohio	\$1,427,041	\$132.29	83%	42	\$8.46	87%	40
South Dakota	\$85,995	\$121.46	76%	45	\$9.46	97%	33
Missouri	\$603,535	\$116.90	73%	46	\$7.60	78%	44
National Average	\$39,337,633	\$159.18	100%		\$9.74	100%	
<u>Missouri and Contiguous States</u>							
Nebraska	\$290,491	\$182.70	115%	10	\$12.27	126%	13
Iowa	\$502,293	\$180.68	114%	12	\$12.09	124%	14
Kansas	\$444,788	\$178.99	112%	14	\$11.31	116%	17
Tennessee	\$727,449	\$147.47	93%	27	\$10.71	110%	20
Kentucky	\$550,182	\$147.03	92%	28	\$11.51	118%	15
Illinois	\$1,675,322	\$144.44	91%	33	\$8.21	84%	41
Oklahoma	\$453,090	\$137.93	87%	38	\$10.49	108%	24
Arkansas	\$301,201	\$124.77	78%	44	\$10.29	106%	27
Missouri	\$603,535	\$116.90	73%	46	\$7.60	78%	44
National Average	\$39,337,633	\$159.18	100%		\$9.74	100%	

Source: Grapevine, Center for Higher Education, Department of Educational Administration and Foundations, Illinois State University, Normal, Illinois, page 2270, December 1989.

This chart shows our total dollars available for spending on higher education per student as compared to the other states proposed in the Midwest Compact. On measures of a combined state and local appropriation per student -- which is generally more useful when comparing levels of state support for actual educational operating expenses -- Missouri does quite well in its support for higher education, ranking 25th nationally and 4th among the Midwest Compact states. (If local appropriations are subtracted from the figures, Missouri would be ranked 29th in the nation and appropriating 94% of the national average.)

(Note that now North Dakota ranks 48th nationally and at the bottom among the Midwest Compact states.)

For Missouri to enter the top 10 states in the nation, the state and local appropriation per student would have to increase \$1,114, for a total additional appropriation of \$147.3 million.

**MISSOURI AND OTHER MIDWESTERN STATES
STATE AND LOCAL SPENDING ON PUBLIC HIGHER EDUCATION**

State	Appropriated per Student, 1988-89	% of Nat'l Avg.	Nat'l Rank	Group Rank	11-Year Change in Appropriations, 1978-89*	Appropriated per Student, 1987-88	% of Nat'l Avg.	Nat'l Rank	Group Rank	10-Year Change in Appropriations, 1978-88*
Minnesota	\$4,231	100%	20	1	-12.4%	\$4,080	101%	19	1	-11.4%
Iowa	\$4,073	96%	22	2	-9.8%	\$3,903	96%	23	2	-9.3%
Wisconsin	\$4,028	95%	24	3	-12.4%	\$3,796	94%	25	3	-13.4%
Missouri	\$4,017	95%	25	4	-3.9%	\$3,652	90%	29	6	-9.0%
Indiana	\$3,893	92%	28	5	-6.6%	\$3,723	92%	26	4	-6.3%
Michigan	\$3,766	89%	33	6	-7.0%	\$3,684	91%	27	5	-4.5%
Kansas	\$3,725	88%	34	7	-3.4%	\$3,486	86%	38	7	-5.1%
Nebraska	\$3,632	86%	36	8	-19.3%	\$2,955	73%	44	11	-21.0%
Illinois	\$3,595	85%	37	9	-6.5%	\$3,446	85%	39	8	-7.3%
Ohio	\$3,423	81%	42	10	3.9%	\$3,324	82%	41	9	5.9%
South Dakota	\$3,138	74%	44	11	-14.7%	\$2,705	67%	48	12	-24.5%
North Dakota	\$2,803	66%	48	12	-29.4%	\$3,016	74%	43	10	-20.2%
National Avg.	\$4,234				1.3%	\$4,053				2.5%
*Adjusted for inflation										

Missouri also does quite well compared to its contiguous states, ranking third among the nine states and ranking 25th nationally.

Note that while Missouri's state and local appropriation per student was 90 percent of the national average in FY 1988, it increased to 95 percent of the national average in FY 1989.

(Source: State Profiles: Financing Public Higher Education, 1978 to 1989, Research Associates of Washington (Kent Halstead's Report.)

**MISSOURI AND CONTIGUOUS STATES
STATE AND LOCAL SPENDING ON PUBLIC HIGHER EDUCATION**

State	Appropriated per Student, 1988-89	% of Nat'l Avg.	Nat'l Rank	Group Rank	11-Year Change in Appropriations, 1978-89*	Appropriated per Student, 1987-88	% of Nat'l Avg.	Nat'l Rank	Group Rank	10-Year Change in Appropriations, 1978-88*
Tennessee	\$4,396	104%	16	1	15.3%	\$4,244	105%	14	1	24.0%
Iowa	\$4,073	96%	22	2	-9.8%	\$3,903	96%	23	2	-9.3%
Missouri	\$4,017	95%	25	3	-3.9%	\$3,652	90%	29	3	-9.0%
Kansas	\$3,725	88%	34	4	-3.4%	\$3,486	86%	38	7	-5.1%
Oklahoma	\$3,698	87%	35	5	10.4%	\$3,602	89%	32	4	12.9%
Nebraska	\$3,632	86%	36	6	-19.3%	\$2,955	73%	44	9	-21.0%
Illinois	\$3,595	85%	37	7	-6.5%	\$3,446	85%	39	8	-7.3%
Arkansas	\$3,497	83%	40	8	-6.5%	\$3,532	87%	36	6	-0.9%
Kentucky	\$3,436	81%	41	9	-25.2%	\$3,539	87%	35	5	-19.1%
National Avg.	\$4,234				1.3%	\$4,053				2.5%
*Adjusted for inflation										

While it was noted earlier that the proportion of total revenue derived from student fees has increased over time, the price of a Missouri higher education is still not out of line compared to charges in other states.

Missouri's annual rate of increase in fees has been 6.9 percent at its research university, which is below the national average of 7.5 percent and that of many similar research universities in the Midwest Compact States.

**RESIDENT UNDERGRADUATE TUITION AND REQUIRED FEES
ACADEMIC YEARS 1985-86 AND 1989-90**

RESEARCH UNIVERSITIES

State	1989-90		1985-86		Annual Rate of Change	Group Rank
	Amount	Group Rank	Amount	Group Rank		
Proposed Midwest Compact States						
Michigan*	\$3,395	1	\$2,359	1	9.5%	5
Illinois	2,919	2	1,967	3	10.4%	2
Minnesota*	2,527	3	2,109	2	4.6%	11
Ohio	2,190	4	1,704	4	6.5%	9
Indiana	2,175	5	1,660	5	7.0%	7
Wisconsin	2,003	6	1,390	10	9.6%	4
Iowa	2,000	7	1,304	11	11.3%	1
Nat'l Avg.	1,972	8	1,476	7	7.5%	6
Missouri*	1,906	9	1,457	8	6.9%	8
Nebraska	1,810	10	1,512	6	4.6%	12
South Dakota	1,809	11	1,432	9	6.0%	10
North Dakota	1,724	12	1,167	13	10.2%	3
Kansas	1,450	13	1,230	12	4.2%	13
Missouri and Contiguous States						
Illinois	2,919	1	1,967	1	10.4%	4
Iowa	2,000	2	1,304	5	11.3%	3
Nat'l Avg.	1,972	3	1,476	3	7.5%	6
Missouri*	1,906	4	1,457	4	6.9%	7
Nebraska	1,810	5	1,512	2	4.6%	9
Kentucky	1,560	6	1,228	7	6.2%	8
Tennessee	1,546	7	1,092	8	9.1%	5
Oklahoma	1,513	8	858	10	15.2%	1
Arkansas	1,493	9	930	9	12.6%	2
Kansas	1,450	10	1,230	6	4.2%	10

* Average of lower and upper division charges.

Source: 1989-90 Tuition and Fee Rates: A National Comparison. Higher Education Coordinating Board, State of Washington, February 1990.

Among the regional universities and state colleges, it is a similar story. They are below the national average and the other midwestern states.

Fees at Missouri's regional universities and state colleges have experienced an annual rate of increase of 10.4 percent which is a more rapid increase than the national rate (7.5%).

One of the reasons we've had the opportunity to shift some of the burden of financing higher education to the students without getting our fees way out of line is that historically Missouri was a very low fee state -- and our fees are still riding below national averages. Any significant increase in fees, however, might begin to price many of our students out of the market.

**RESIDENT UNDERGRADUATE TUITION AND REQUIRED FEES
ACADEMIC YEARS 1985-86 AND 1989-90**

STATE COLLEGES AND UNIVERSITIES

State	1989-90		1985-86		Annual Rate of Change	Group Rank
	Amount	Group Rank	Amount	Group Rank		
Proposed Midwest Compact States						
Ohio	\$2,350	1	\$1,756	1	7.6%	5
Illinois	2,141	2	1,424	5	10.7%	2
Michigan	2,019	3	1,477	4	8.1%	4
Iowa	2,000	4	1,242	8	12.6%	1
Indiana	1,992	5	1,548	2	6.5%	10
Minnesota	1,770	6	1,519	3	3.9%	13
Wisconsin	1,739	7	1,304	7	7.5%	6
South Dakota	1,617	8	1,324	6	5.1%	11
Nat'l Avg.	1,603	9	1,202	9	7.5%	7
Missouri	1,422	10	958	13	10.4%	3
Kansas	1,368	11	1,142	10	4.6%	12
North Dakota	1,359	12	1,031	11	7.1%	8
Nebraska	1,349	13	1,029	12	7.0%	9
Missouri and Contiguous States						
Illinois	2,141	1	1,424	1	10.7%	4
Iowa	2,000	2	1,242	2	12.6%	2
Nat'l Avg.	1,603	3	1,202	3	7.5%	7
Missouri	1,422	4	958	6	10.4%	5
Kansas	1,368	5	1,142	4	4.6%	10
Nebraska	1,349	6	1,029	5	7.0%	8
Tennessee	1,307	7	929	8	8.9%	6
Arkansas	1,299	8	828	9	11.9%	3
Kentucky	1,220	9	954	7	6.3%	9
Oklahoma	1,198	10	604	10	18.7%	1

Source: 1989-90 Tuition and Fee Rates: A National Comparison. Higher Education Coordinating Board,
State of Washington. February 1990.

Missouri's community colleges are priced over \$200 dollars below the national average.

**RESIDENT UNDERGRADUATE TUITION AND REQUIRED FEES
ACADEMIC YEARS 1985-86 AND 1989-90**

COMMUNITY COLLEGES

State	1989-90		1985-86		Annual Rate of Change	Group Rank
	Amount*	Group Rank	Amount*	Group Rank		
Proposed Midwest Compact States						
Indiana	\$1,500	1	\$1,200	1	5.7%	7
Ohio	1,411	2	1,057	4	7.5%	2
Wisconsin	1,402	3	1,146	3	5.2%	9
Minnesota	1,373	4	1,170	2	4.1%	11
North Dakota	1,309	5	1,018	5	6.5%	4
Iowa	1,113	6	860	6	6.7%	3
Michigan	982	7	796	7	5.4%	8
Nat'l Avg.	879	8	686	9	6.4%	5
Illinois	862	9	715	8	4.8%	10
Nebraska	812	10	647	10	5.8%	6
Kansas	735	11	630	11	3.9%	12
Missouri	664	12	489	12	7.9%	1
South Dakota**	NA		NA		NA	
Missouri and Contiguous States						
Iowa	\$1,113	1	\$860	1	6.7%	4
Nat'l Avg.	879	2	686	3	6.4%	5
Illinois	862	3	715	2	4.8%	8
Oklahoma	845	4	456	10	16.7%	1
Nebraska	812	5	647	4	5.8%	7
Tennessee	780	6	570	6	8.2%	2
Kansas	735	7	630	5	3.9%	9
Missouri	664	8	489	9	7.9%	3
Arkansas	640	9	502	8	6.3%	6
Kentucky	600	10	520	7	3.6%	10

* Estimated State Averages

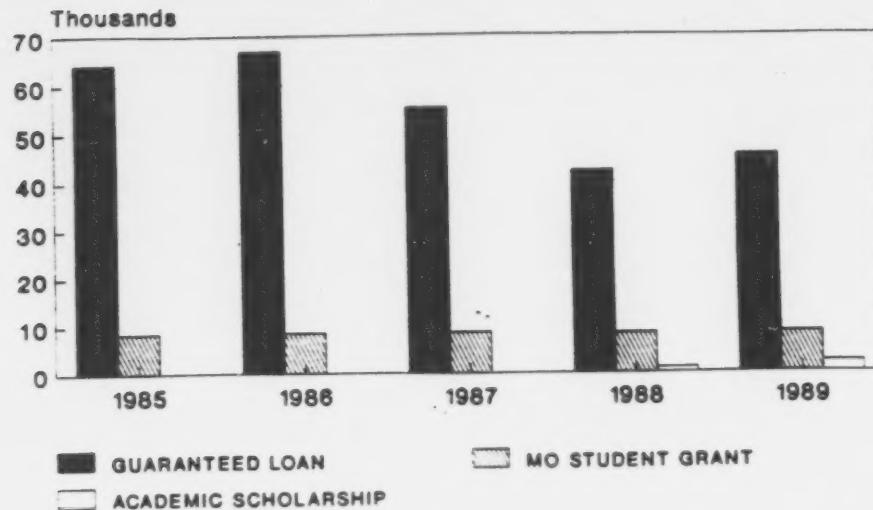
** South Dakota has no public two-year community colleges.

Source: 1989-90 Tuition and Fee Rates: A National Comparison. Higher Education Coordinating Board,
State of Washington, February 1990.

Student financial aid plays an important role in assisting students to finance the cost of their education. In recent years, the loan programs have taken on increasing importance as a source of financial aid.

In 1978, Missouri established its own loan guaranty program as provided by the 1976 amendments to the federal Higher Education Act of 1965, called the Missouri Stafford Student Loan Program. Even though Missouri has its own guarantor, last year, because of the aggressive marketing activities of the Higher Education Assistance Foundation out of Kansas and the United Student Aid Fund out of Indiana, we now have 55 percent of Missouri's business going out of state -- and we are losing the fees generated from those loans.

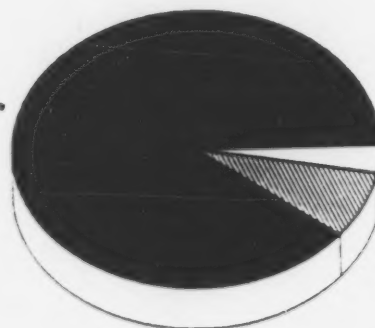
NUMBER OF STUDENTS SERVED BY FINANCIAL AID PROGRAMS ADMINISTERED BY THE CBHE, FY 1985 TO FY 1989



Source: CBHE files

FINANCIAL AID PROGRAMS ADMINISTERED BY THE CBHE FOR STUDENTS AT BOTH PUBLIC AND INDEPENDENT INSTITUTIONS, FY 1989

GUARANTEED LOAN \$111,687,942*



ACADEMIC SCH. \$4,071,000

MO. STUDENT GRANT \$9,881,657

*This represents only 45% of the loans guaranteed in Missouri. The remaining 55% are from other national guarantors.

Source: CBHE files

Missouri public higher education has 1,504 buildings with an average age of 32 years, which would cost over \$2 billion to replace.

The Office of Administration estimates that it would take \$112 million to repair those facilities.



- 1,504 Buildings
- Average Age 32 Years
- \$2 Billion to Replace
- \$112 Million to Repair

Source: Office of Administration, Division of Design and Construction

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This overview involved a review of some of the issues related to Missouri higher education: the quality of students as reflected in their preparation for college; their participation and characteristics; and the productivity of our institutions in providing Missouri's labor force with college graduates.

In addition, the instructional, programmatic, financial and physical resources available to Missouri and its system of higher education have been highlighted.

Not much has been said about performance --

Indeed, there is not much available on performance.

Challenges for the Nineties

Preparation

Participation

Productivity

Performance

To better assess the performance of Missouri public higher education, the Coordinating Board has adopted a set of Statewide Higher Education Performance Indicators. In addition, each public institution is developing a parallel set of indicators.

These indicators will provide information relevant to the assessment of Outcomes, Resources, and the Context of Missouri higher education.

However, much of the most critical information on performance is not presently available and will require a special collection effort to make it available. Information on many of these performance indicators cannot be presented today because institutions are in the process of developing them. Thus our evidence on the quality of graduates in Missouri higher education is somewhat limited.

Missouri Statewide Higher Education Performance Indicators

Outcomes

Involvement

Completions and Employment

Performance

Perceptions and Attitudes: Employers and Alumni

Research

Public Service

Resources

Faculty

Investment in Higher Education

Financial Aid

Contexts (Demographic, Economic)

Access/Participation

Preparation

Affordability

SUMMARY

To summarize, the major issues of Missouri public higher education are:

Student preparation and achievement and how higher education can strengthen it.

Minority recruitment and retention.

Teacher education.

Attrition rate and degree completion rates -- which have implications for mission refinements.

Declining enrollments and degree completions in key academic disciplines vital to the economy.

The need for increased graduate education and research at the doctoral degree granting institutions.

Evidence to show that Missouri students are nationally competitive in the area of student learning.

Faculty issues -- recruitment, retention, and morale.

State financing strategies.

The declining percentage of general revenue available for higher education -- mainly as a result of other programs forced on the states by the federal government.

Governance and coordination issues.

Physical plant issues -- which cannot be ignored without great peril over a long period of time.